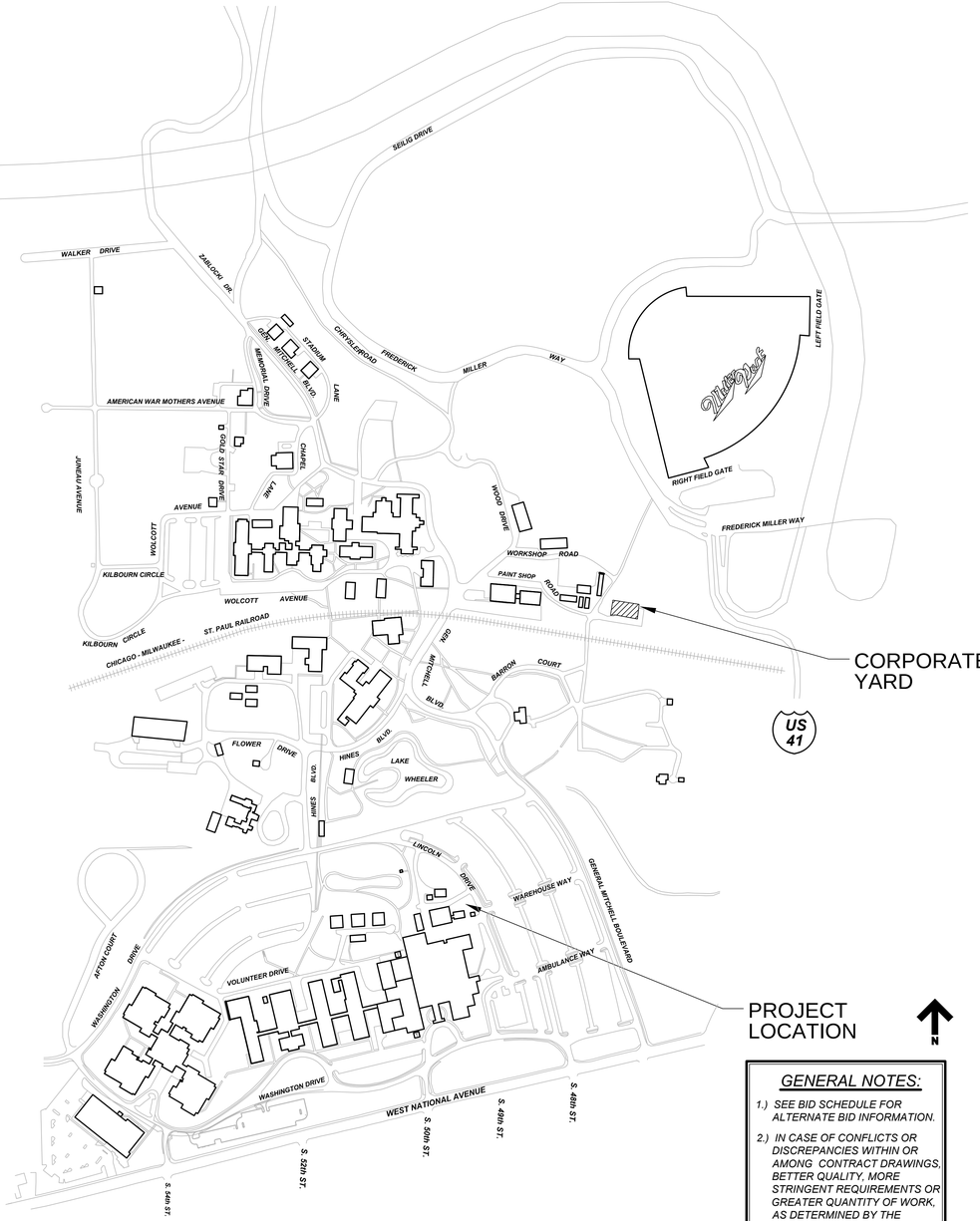
'C L E M E N T J . Z A B L O C K I V A M E D I C A L C E N T E R'

5000 W. NATIONAL AVE.
MILWAUKEE, WI

BUILDING 115 - REPLACE ELECTRICAL SUB-STATION
PROJECT NO.: 695-12-118

CAMPUS MAP



GENERAL NOTES:

1.) *SEE BID SCHEDULE FOR ALTERNATE BID INFORMATION.*

2.) *IN CASE OF CONFLICTS OR DISCREPANCIES WITHIN OR AMONG CONTRACT DRAWINGS, BETTER QUALITY, MORE STRINGENT REQUIREMENTS OR GREATER QUANTITY OF WORK, AS DETERMINED BY THE GOVERNMENT, SHALL BE PROVIDED.*

PROJECT TEAM

PROJECT LEADER/STRUCTURAL ENGINEER

CHEQUAMEGON BAY ENGINEERING, INC.

MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI, 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

CIVIL ENGINEER

CHEQUAMEGON BAY ENGINEERING, INC.

MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI, 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

ARCHITECT

CHEQUAMEGON BAY ENGINEERING, INC.

MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI, 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

HVAC

CHEQUAMEGON BAY ENGINEERING, INC.

MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI, 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

ELECTRICAL

GEIGER + LARSON ENGINEERING

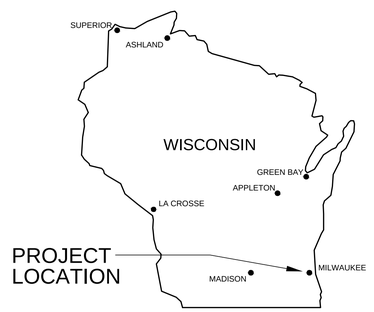
316 N. Milwaukee St, SUITE 202
MILWAUKEE, WI, 53202
PHONE: (414) 273-1432

ENVIRONMENTAL

THE SIGMA GROUP

1300 W. Canal St.,
MILWAUKEE, WI, 53233
PHONE: (414) 643-4150

LOCATION MAP



SHEET INDEX

DRAWING SHEET INDEX	
SHEET NO.	SHEET TITLE
G100	TITLE SHEET, PROJECT INFORMATION & SHEET INDEX
C100	EXISTING SITE CONDITIONS
C101	SITE DEMOLITION PLAN
C102	SITE LAYOUT
C103	SITE GRADING AND DRAINAGE PLAN
C103.1	FOUNDATION AND RETAINING WALL DRAIN SYSTEM
C103.2	ROOF DRAIN SYSTEM
C104	SITE UTILITY PLAN
C105	EROSION CONTROL PLAN
C106	CONSTRUCTION PHASING PLAN
C107	SITE PLANTING PLAN
C108	DETAILS
C109	RETAINING WALL ELEVATIONS
A000	ARCHITECTURAL ABBREVIATIONS
A101	NEW CONSTRUCTION FLOOR AND ROOF PLANS
A200	EXTERIOR BUILDING ELEVATIONS
A500	BUILDING SECTIONS & ENLARGED DETAILS
A800	DOOR SCHEDULE, DOOR & FRAME TYPES, & DETAILS
S000	STRUCTURAL NOTES
S101	NEW CONSTRUCTION FRAMING & FOUNDATION PLANS
S201	STRUCTURAL ELEVATIONS
S501	STRUCTURAL DETAILS
S502	FOUNDATION DETAILS
M101	HVAC PLAN
E000	ELECTRICAL SYMBOLS, ABBREVIATIONS & PHASING
ES100	ELECTRICAL SITE PLAN
E100	ELECTRICAL FLOOR PLANS
E101	ELECTRICAL CABLE VAULT - CABLE ROUTING
E501	ELECTRICAL DETAILS
E601	ELECTRICAL SCHEDULE
E700	EXISTING ONE LINE POWER DIAGRAM
E701	ONE LINE POWER DIAGRAM
Y100	TECHNOLOGY FLOOR PLANS

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

THE SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC.
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

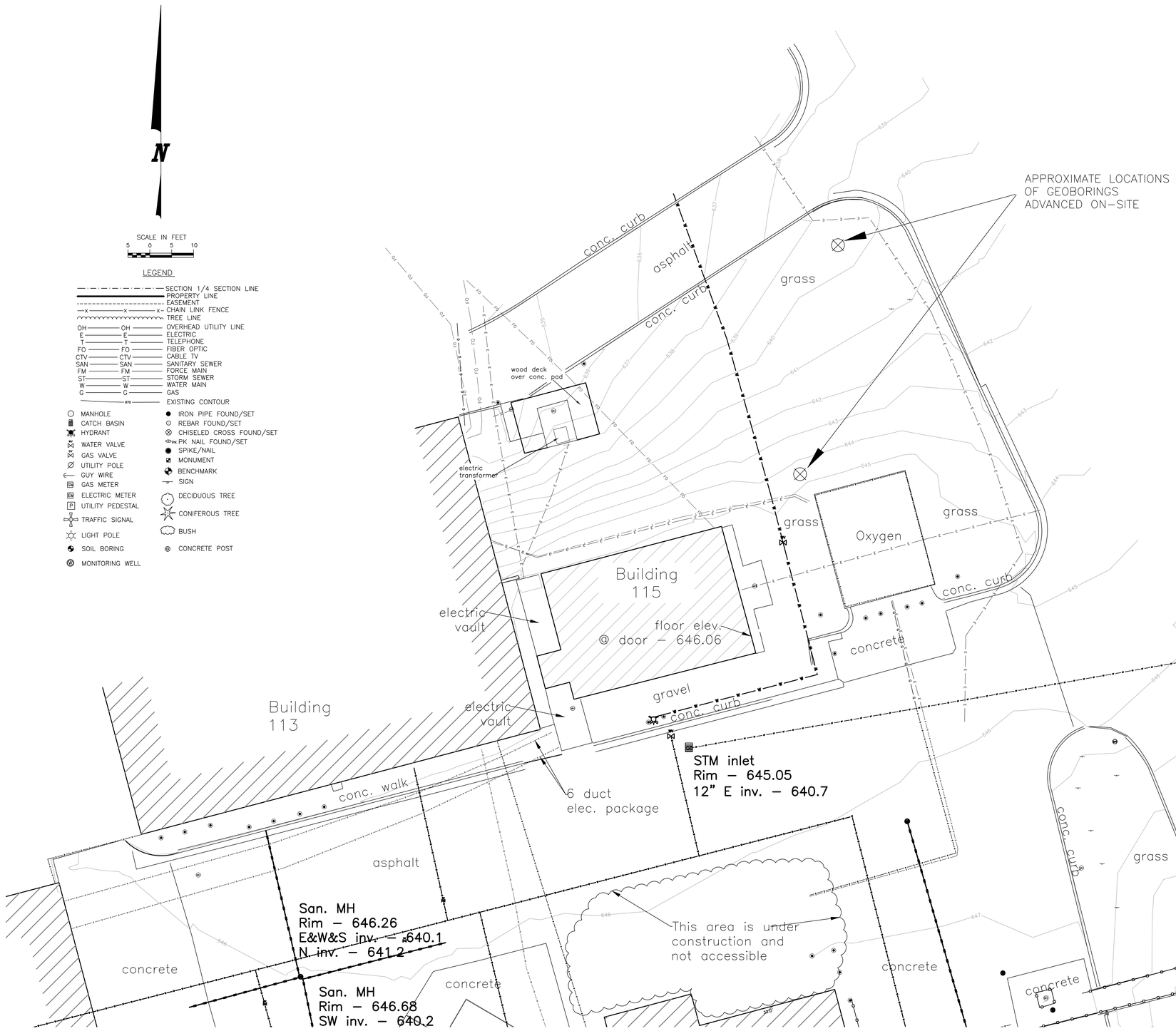
CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2002-2009

ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI, 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025

MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI, 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

Drawing Title: Title Sheet Project Information & Sheet Index	Project Title: Replace Electrical Sub-Station	Project Number: 695-12-118	CONSTRUCTION DOCUMENTS
		Building Number: 115	Office of Facilities Management
Approved: Project Director	Location: VA Medical Center,Milwaukee, WI	Drawing Number: G100	Department of Veterans Affairs
	Date: 30 July 2012 / Checked By: DJC / Drawn By: MAB		

VA FORM 08-6231, OCT 1978



GENERAL NOTES

1. EXISTING CONDITIONS AND TOPOGRAPHIC FEATURES, INCLUDING UTILITIES, HAVE BEEN LOCATED FROM FIELD LOCATES BY ALL LINES, INC AND SURVEY BY THE SIGMA GROUP, DATED MARCH, 2012.
2. AWARDED CONTRACTOR MUST COMPLY WITH THE CONDITIONS OF PERMITS OBTAINED IN CONJUNCTION WITH THIS WORK. COPIES OF PERMITS, IF ANY, ARE AVAILABLE IN PROJECT MANUAL OR ARE AVAILABLE FROM THE OWNER UPON REQUEST.
3. UTILITIES SHOWN ARE AS REPORTED TO THE DESIGN TEAM AND INDICATED ON THE EXISTING UTILITY BASE PLAN, NO ATTEMPTS HAVE BEEN MADE TO EXCAVATE, UNCOVER OR EXPOSE UNDERGROUND UTILITIES.
4. ROADWAY, GRADING AND OTHER SITE WORK MUST BE COMPLETED IN ACCORDANCE WITH THE STANDARD VA SPECIFICATIONS.
5. THE CONTRACTOR SHALL COMPLY WITH PERTINENT PROVISIONS OF THE "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION" ISSUED BY THE U.S. DEPARTMENT OF LABOR.
6. PERIODIC TEMPORARY TRAFFIC CONTROL MAY BE REQUIRED IN ORDER TO COMPLETE SITE WORK. CONTRACTOR MUST NOTIFY CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR) 24 HRS. PRIOR TO IMPACTING ANY TRAFFIC LANES. TEMPORARY TRAFFIC CONTROL WILL BE INCIDENTAL TO THE CONSTRUCTION ACTIVITIES.
7. THE CONTRACTOR SHALL PROTECT UTILITIES AND SITE IMPROVEMENTS TO REMAIN. ANY DAMAGE TO EXISTING UTILITIES OR SITE IMPROVEMENTS TO REMAIN SHALL BE REPAIRED BY CONTRACTOR. ANY NECESSARY REPAIRS MUST BE REPAIRED TO OWNER'S SPECIFICATIONS AND COORDINATED WITH THE VAMC COTR. NECESSARY REPAIRS FOR DAMAGE WILL BE COMPLETED AT THE CONTRACTOR'S EXPENSE.
8. IN THE EVENT OF ANY DISCREPANCIES AND/OR ERRORS FOUND IN THE DRAWINGS, OR IF PROBLEMS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE COTR AND ENGINEER IMMEDIATELY, PRIOR TO PROCEEDING WITH WORK. IF ENGINEER IS NOT NOTIFIED IMMEDIATELY, CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY REVISIONS TO PLANS AND SPECIFICATIONS, AS WELL AS REPAIRS DO TO CONTINUED CONSTRUCTION AFTER AN ERROR OR DISCREPANCY IS FOUND.
9. CONTROL POINTS AND COORDINATES LISTED ARE BASED ON THE SURVEY PREPARED BY THE SIGMA GROUP. CONTRACTOR MUST VERIFY CONTROL POINTS IN THE FIELD AND WITH THE SIGMA GROUP, TO CONFIRM THEY ARE VALID PRIOR TO CONSTRUCTING THE SITE LAYOUT.
10. CONTRACTOR IS SOLELY RESPONSIBLE TO PROVIDE ADVANCED NOTICE TO THE DESIGNATED "ONE CALL SYSTEM" NOT LESS THAN THREE WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION REQUIRED TO PERFORM WORK CONTAINED ON ATTACHED PLAN SET.
11. EXISTING CONDITIONS SHALL BE FIELD VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORK. DISCREPANCIES ARE TO BE REPORTED TO VAMC COTR PRIOR TO STARTING WORK.

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

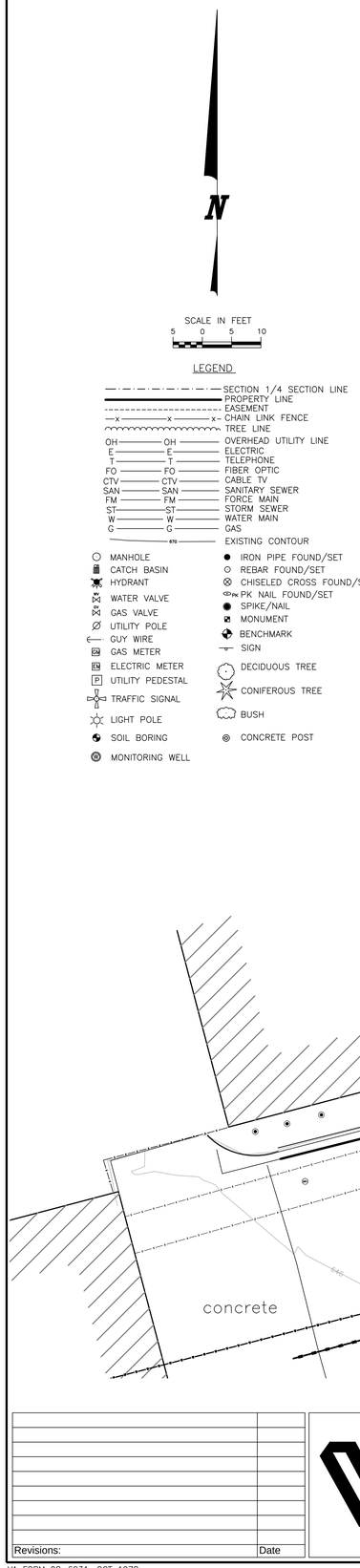
CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2002-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

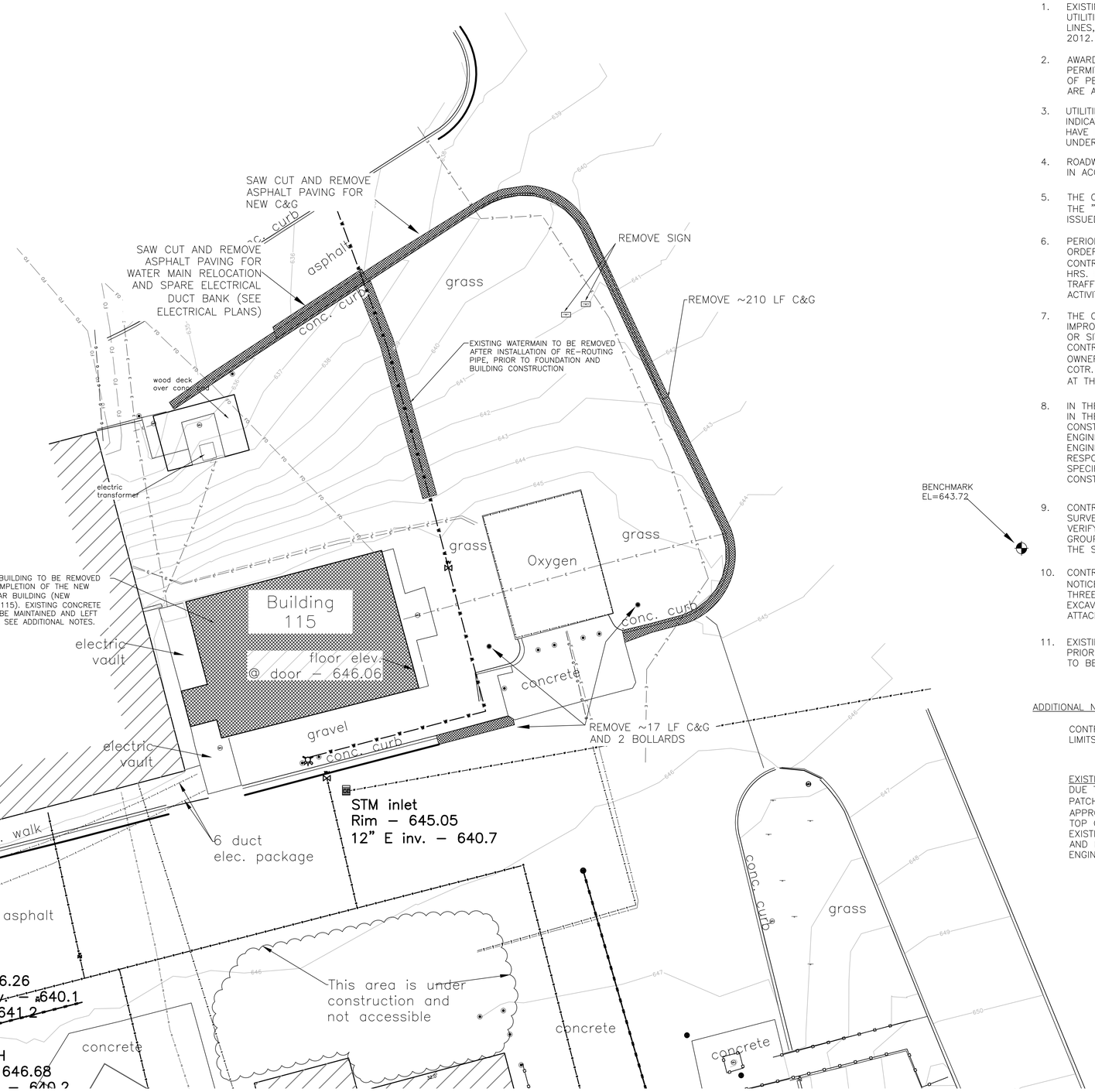
Drawing Title: Existing Site Conditions
Project Title: Replace Electrical Sub-Station
Project Number: 695-12-118
Building Number: 115
Approved: Project Director
Location: VA Medical Center,Milwaukee, WI
Date: 30 July 2012
Checked By: DJC
Drawn By: MAB
Drawing Number: C100

CONSTRUCTION DOCUMENTS

Office of Facilities Management
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978





GENERAL NOTES

1. EXISTING CONDITIONS AND TOPOGRAPHIC FEATURES, INCLUDING UTILITIES, HAVE BEEN LOCATED FROM FIELD LOCATES BY ALL LINES, INC AND SURVEY BY THE SIGMA GROUP, DATED MARCH, 2012.
2. AWARDED CONTRACTOR MUST COMPLY WITH THE CONDITIONS OF PERMITS OBTAINED IN CONJUNCTION WITH THIS WORK. COPIES OF PERMITS, IF ANY, ARE AVAILABLE IN PROJECT MANUAL OR ARE AVAILABLE FROM THE OWNER UPON REQUEST.
3. UTILITIES SHOWN ARE AS REPORTED TO THE DESIGN TEAM AND INDICATED ON THE EXISTING UTILITY BASE PLAN, NO ATTEMPTS HAVE BEEN MADE TO EXCAVATE, UNCOVER OR EXPOSE UNDERGROUND UTILITIES.
4. ROADWAY, GRADING AND OTHER SITE WORK MUST BE COMPLETED IN ACCORDANCE WITH THE STANDARD VA SPECIFICATIONS.
5. THE CONTRACTOR SHALL COMPLY WITH PERTINENT PROVISIONS OF THE "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION" ISSUED BY THE U.S. DEPARTMENT OF LABOR.
6. PERIODIC TEMPORARY TRAFFIC CONTROL MAY BE REQUIRED IN ORDER TO COMPLETE SITE WORK. CONTRACTOR MUST NOTIFY CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR) 24 HRS. PRIOR TO IMPACTING ANY TRAFFIC LANES. TEMPORARY TRAFFIC CONTROL WILL BE INCIDENTAL TO THE CONSTRUCTION ACTIVITIES.
7. THE CONTRACTOR SHALL PROTECT UTILITIES AND SITE IMPROVEMENTS TO REMAIN. ANY DAMAGE TO EXISTING UTILITIES OR SITE IMPROVEMENTS TO REMAIN SHALL BE REPAIRED BY CONTRACTOR. ANY NECESSARY REPAIRS MUST BE REPAIRED TO OWNER'S SPECIFICATIONS AND COORDINATED WITH THE VAMC COTR. NECESSARY REPAIRS FOR DAMAGE WILL BE COMPLETED AT THE CONTRACTOR'S EXPENSE.
8. IN THE EVENT OF ANY DISCREPANCIES AND/OR ERRORS FOUND IN THE DRAWINGS, OR IF PROBLEMS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE COTR AND ENGINEER IMMEDIATELY, PRIOR TO PROCEEDING WITH WORK. IF ENGINEER IS NOT NOTIFIED IMMEDIATELY, CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY REVISIONS TO PLANS AND SPECIFICATIONS, AS WELL AS REPAIRS DO TO CONTINUED CONSTRUCTION AFTER AN ERROR OR DISCREPANCY IS FOUND.
9. CONTROL POINTS AND COORDINATES LISTED ARE BASED ON THE SURVEY PREPARED BY THE SIGMA GROUP. CONTRACTOR MUST VERIFY CONTROL POINTS IN THE FIELD AND WITH THE SIGMA GROUP. TO CONFIRM THEY ARE VALID PRIOR TO CONSTRUCTING THE SITE LAYOUT.
10. CONTRACTOR IS SOLELY RESPONSIBLE TO PROVIDE ADVANCED NOTICE TO THE DESIGNATED "ONE CALL SYSTEM" NOT LESS THAN THREE WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION REQUIRED TO PERFORM WORK CONTAINED ON ATTACHED PLAN SET.
11. EXISTING CONDITIONS SHALL BE FIELD VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORK. DISCREPANCIES ARE TO BE REPORTED TO VAMC COTR PRIOR TO STARTING WORK.

ADDITIONAL NOTES

CONTRACTOR IS TO SAW CUT FINISHED SURFACES AT REMOVAL LIMITS TO CREATE A CLEAN JOINT FOR RECONSTRUCTION.

EXISTING BUILDING

DUE TO UNSEEN SITE CONDITIONS, CONTRACTOR IS DIRECTED TO PATCH HOLES AND/OR DEPRESSIONS IN EXISTING SLAB. APPROXIMATELY 2" OF FINISH CONCRETE IS TO BE PLACED ON TOP OF EXISTING SLAB FOR UNIFORM SURFACE DRAINING NORTH. EXISTING CONDUIT TRENCH WILL REQUIRE REMOVAL OF CABLE AND FILLING WITH CONCRETE. COORDINATE WITH VA RESIDENT ENGINEER.

CONSTRUCTION DOCUMENTS

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2003-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
933 N. MAYFAIR RD.,
SUITE 109
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

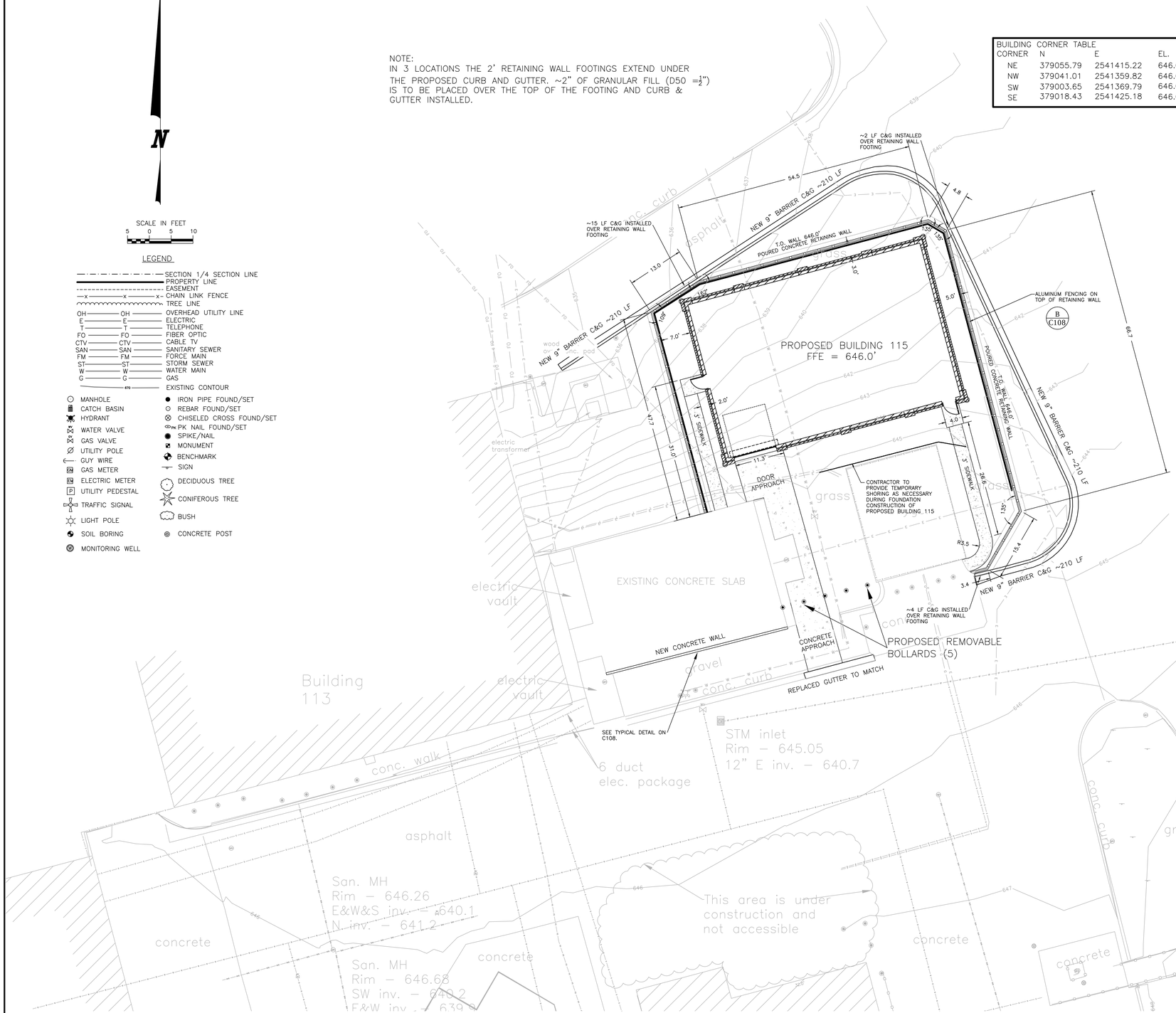
Drawing Title	Site Demolition Plan
Approved: Project Director	
Project Title	Replace Electrical Sub-Station
Location	VA Medical Center,Milwaukee, WI
Date	30 July 2012
Checked By:	DJC
Drawn By:	MAB
Project Number	695-12-118
Building Number	115
Drawing Number	C101

Office of Facilities Management
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978

NOTE:
IN 3 LOCATIONS THE 2' RETAINING WALL FOOTINGS EXTEND UNDER THE PROPOSED CURB AND GUTTER. ~2" OF GRANULAR FILL (D50 =½") IS TO BE PLACED OVER THE TOP OF THE FOOTING AND CURB & GUTTER INSTALLED.

BUILDING CORNER TABLE			
CORNER	N	E	EL.
NE	379055.79	2541415.22	646.0
NW	379041.01	2541359.82	646.0
SW	379003.65	2541369.79	646.0
SE	379018.43	2541425.18	646.0



SCALE IN FEET
5 0 5 10

LEGEND

- SECTION 1/4 SECTION LINE
- PROPERTY LINE
- EASEMENT
- CHAIN LINK FENCE
- TREE LINE
- OVERHEAD UTILITY LINE
- ELECTRIC
- TELEPHONE
- FIBER OPTIC
- CABLE TV
- SANITARY SEWER
- FORCE MAIN
- STORM SEWER
- WATER MAIN
- GAS
- EXISTING CONTOUR

- MANHOLE
- CATCH BASIN
- HYDRANT
- WATER VALVE
- GAS VALVE
- UTILITY POLE
- GUY WIRE
- GAS METER
- ELECTRIC METER
- UTILITY PEDESTAL
- TRAFFIC SIGNAL
- LIGHT POLE
- SOIL BORING
- MONITORING WELL
- IRON PIPE FOUND/SET
- REBAR FOUND/SET
- CHISELED CROSS FOUND/SET
- PK NAIL FOUND/SET
- SPIKE/NAIL
- MONUMENT
- BENCHMARK
- SIGN
- DECIDUOUS TREE
- CONIFEROUS TREE
- BUSH
- CONCRETE POST

GENERAL NOTES

1. EXISTING CONDITIONS AND TOPOGRAPHIC FEATURES, INCLUDING UTILITIES, HAVE BEEN LOCATED FROM FIELD LOCATES BY ALL LINES, INC AND SURVEY BY THE SIGMA GROUP, DATED MARCH, 2012.
2. AWARDED CONTRACTOR MUST COMPLY WITH THE CONDITIONS OF PERMITS OBTAINED IN CONJUNCTION WITH THIS WORK. COPIES OF PERMITS, IF ANY, ARE AVAILABLE IN PROJECT MANUAL OR ARE AVAILABLE FROM THE OWNER UPON REQUEST.
3. UTILITIES SHOWN ARE AS REPORTED TO THE DESIGN TEAM AND INDICATED ON THE EXISTING UTILITY BASE PLAN, NO ATTEMPTS HAVE BEEN MADE TO EXCAVATE, UNCOVER OR EXPOSE UNDERGROUND UTILITIES.
4. ROADWAY, GRADING AND OTHER SITE WORK MUST BE COMPLETED IN ACCORDANCE WITH THE STANDARD VA SPECIFICATIONS.
5. THE CONTRACTOR SHALL COMPLY WITH PERTINENT PROVISIONS OF THE "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION" ISSUED BY THE U.S. DEPARTMENT OF LABOR.
6. PERIODIC TEMPORARY TRAFFIC CONTROL MAY BE REQUIRED IN ORDER TO COMPLETE SITE WORK. CONTRACTOR MUST NOTIFY CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR) 24 HRS. PRIOR TO IMPACTING ANY TRAFFIC LANES. TEMPORARY TRAFFIC CONTROL WILL BE INCIDENTAL TO THE CONSTRUCTION ACTIVITIES.
7. THE CONTRACTOR SHALL PROTECT UTILITIES AND SITE IMPROVEMENTS TO REMAIN. ANY DAMAGE TO EXISTING UTILITIES OR SITE IMPROVEMENTS TO REMAIN SHALL BE REPAIRED BY CONTRACTOR. ANY NECESSARY REPAIRS MUST BE REPAIRED TO OWNER'S SPECIFICATIONS AND COORDINATED WITH THE VAMC COTR. NECESSARY REPAIRS FOR DAMAGE WILL BE COMPLETED AT THE CONTRACTOR'S EXPENSE.
8. IN THE EVENT OF ANY DISCREPANCIES AND/OR ERRORS FOUND IN THE DRAWINGS, OR IF PROBLEMS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE COTR AND ENGINEER IMMEDIATELY, PRIOR TO PROCEEDING WITH WORK. IF ENGINEER IS NOT NOTIFIED IMMEDIATELY, CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY REVISIONS TO PLANS AND SPECIFICATIONS, AS WELL AS REPAIRS DO TO CONTINUED CONSTRUCTION AFTER AN ERROR OR DISCREPANCY IS FOUND.
9. CONTROL POINTS AND COORDINATES LISTED ARE BASED ON THE SURVEY PREPARED BY THE SIGMA GROUP. CONTRACTOR MUST VERIFY CONTROL POINTS IN THE FIELD AND WITH THE SIGMA GROUP. TO CONFIRM THEY ARE VALID PRIOR TO CONSTRUCTING THE SITE LAYOUT.
10. CONTRACTOR IS SOLELY RESPONSIBLE TO PROVIDE ADVANCED NOTICE TO THE DESIGNATED "ONE CALL SYSTEM" NOT LESS THAN THREE WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION REQUIRED TO PERFORM WORK CONTAINED ON ATTACHED PLAN SET.
11. EXISTING CONDITIONS SHALL BE FIELD VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORK. DISCREPANCIES ARE TO BE REPORTED TO VAMC COTR PRIOR TO STARTING WORK.

ALTERNATE BID ITEMS:

ALTERNATE BID ITEM 1:
CONTRACTOR TO PROVIDE ALTERNATE PRICING FOR COMPLETING THE CONSTRUCTION OF THE BUILDING ROOF WITH ASPHALT SHINGLES.

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

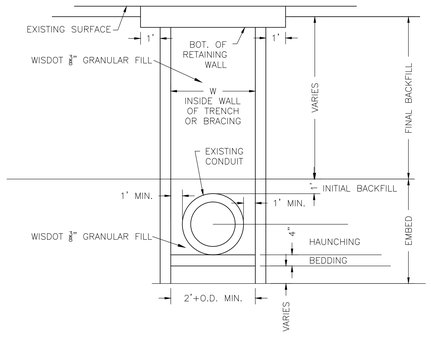
CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2002-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

CONSTRUCTION DOCUMENTS

Drawing Title	Site Layout
Project Title	Replace Electrical Sub-Station
Project Number	695-12-118
Building Number	115
Approved: Project Director	
Location	VA Medical Center,Milwaukee, WI
Date	30 July 2012
Checked By:	DJC
Drawn By:	MAB
Drawing Number	C102

Office of Facilities Management
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978



TRENCH BACKFILL UNDER RETAINING WALL FOR EXISTING ELECTRICAL CONDUIT

NO SCALE

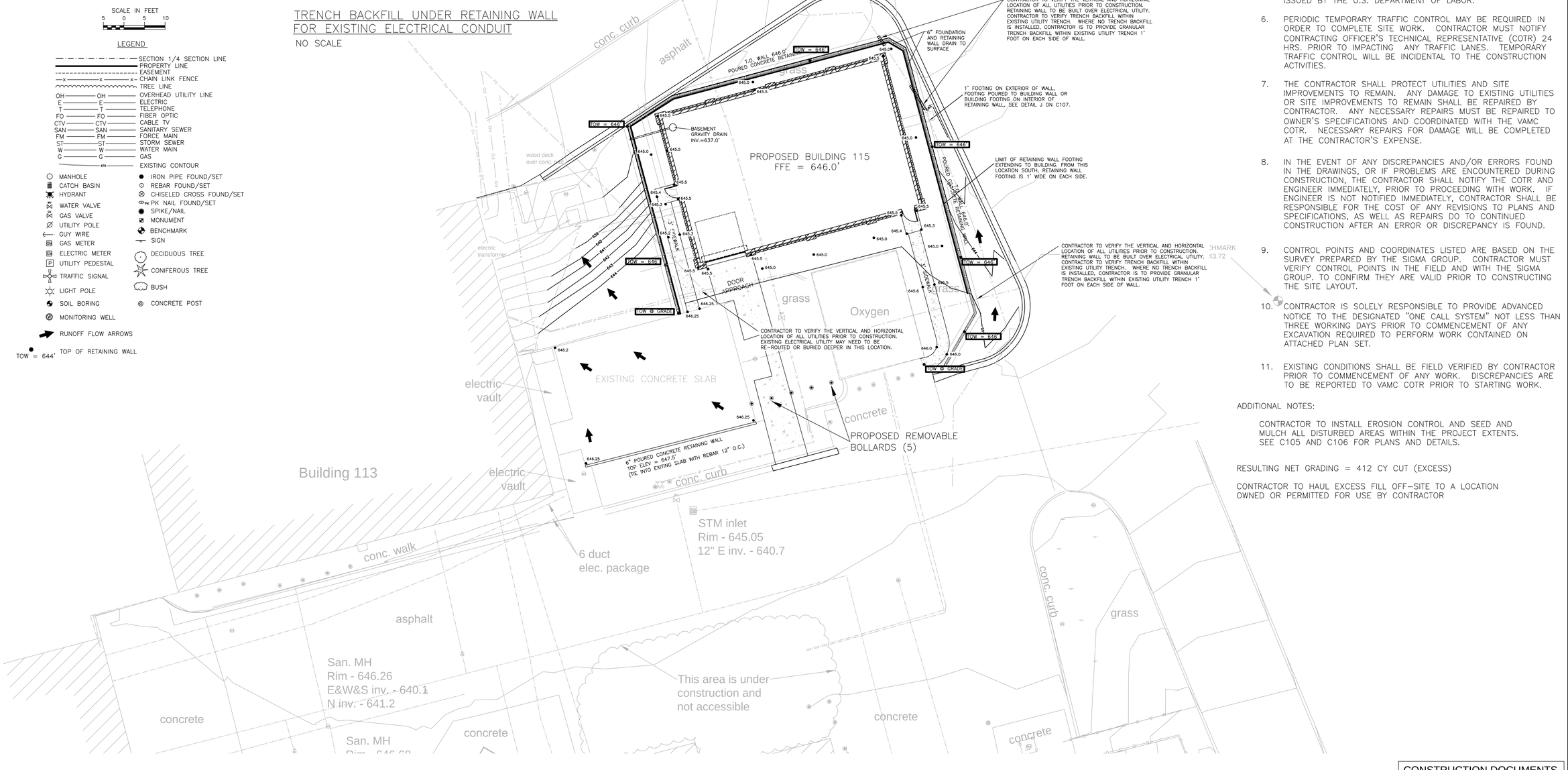
N

SCALE IN FEET
5 0 5 10

LEGEND

- SECTION 1/4 SECTION LINE
- PROPERTY LINE
- EASEMENT
- CHAIN LINK FENCE
- TREE LINE
- OVERHEAD UTILITY LINE
- ELECTRIC
- TELEPHONE
- FIBER OPTIC
- CABLE TV
- SANITARY SEWER
- FORCE MAIN
- STORM SEWER
- WATER MAIN
- GAS
- EXISTING CONTOUR

- MANHOLE
- CATCH BASIN
- HYDRANT
- WATER VALVE
- GAS VALVE
- UTILITY POLE
- GUY WIRE
- GAS METER
- ELECTRIC METER
- UTILITY PEDESTAL
- TRAFFIC SIGNAL
- LIGHT POLE
- SOIL BORING
- MONITORING WELL
- RUNOFF FLOW ARROWS
- TOW = 644' TOP OF RETAINING WALL
- IRON PIPE FOUND/SET
- REBAR FOUND/SET
- CHISELED CROSS FOUND/SET
- PK NAIL FOUND/SET
- SPIKE/NAIL
- MONUMENT
- BENCHMARK
- SIGN
- DECIDUOUS TREE
- CONIFEROUS TREE
- BUSH
- CONCRETE POST



GENERAL NOTES

1. EXISTING CONDITIONS AND TOPOGRAPHIC FEATURES, INCLUDING UTILITIES, HAVE BEEN LOCATED FROM FIELD LOCATES BY ALL LINES, INC AND SURVEY BY THE SIGMA GROUP, DATED MARCH, 2012.
2. AWARDED CONTRACTOR MUST COMPLY WITH THE CONDITIONS OF PERMITS OBTAINED IN CONJUNCTION WITH THIS WORK. COPIES OF PERMITS, IF ANY, ARE AVAILABLE IN PROJECT MANUAL OR ARE AVAILABLE FROM THE OWNER UPON REQUEST.
3. UTILITIES SHOWN ARE AS REPORTED TO THE DESIGN TEAM AND INDICATED ON THE EXISTING UTILITY BASE PLAN, NO ATTEMPTS HAVE BEEN MADE TO EXCAVATE, UNCOVER OR EXPOSE UNDERGROUND UTILITIES.
4. ROADWAY, GRADING AND OTHER SITE WORK MUST BE COMPLETED IN ACCORDANCE WITH THE STANDARD VA SPECIFICATIONS.
5. THE CONTRACTOR SHALL COMPLY WITH PERTINENT PROVISIONS OF THE "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION" ISSUED BY THE U.S. DEPARTMENT OF LABOR.
6. PERIODIC TEMPORARY TRAFFIC CONTROL MAY BE REQUIRED IN ORDER TO COMPLETE SITE WORK. CONTRACTOR MUST NOTIFY CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR) 24 HRS. PRIOR TO IMPACTING ANY TRAFFIC LANES. TEMPORARY TRAFFIC CONTROL WILL BE INCIDENTAL TO THE CONSTRUCTION ACTIVITIES.
7. THE CONTRACTOR SHALL PROTECT UTILITIES AND SITE IMPROVEMENTS TO REMAIN. ANY DAMAGE TO EXISTING UTILITIES OR SITE IMPROVEMENTS TO REMAIN SHALL BE REPAIRED BY CONTRACTOR. ANY NECESSARY REPAIRS MUST BE REPAIRED TO OWNER'S SPECIFICATIONS AND COORDINATED WITH THE VAMC COTR. NECESSARY REPAIRS FOR DAMAGE WILL BE COMPLETED AT THE CONTRACTOR'S EXPENSE.
8. IN THE EVENT OF ANY DISCREPANCIES AND/OR ERRORS FOUND IN THE DRAWINGS, OR IF PROBLEMS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE COTR AND ENGINEER IMMEDIATELY, PRIOR TO PROCEEDING WITH WORK. IF ENGINEER IS NOT NOTIFIED IMMEDIATELY, CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY REVISIONS TO PLANS AND SPECIFICATIONS, AS WELL AS REPAIRS DO TO CONTINUED CONSTRUCTION AFTER AN ERROR OR DISCREPANCY IS FOUND.
9. CONTROL POINTS AND COORDINATES LISTED ARE BASED ON THE SURVEY PREPARED BY THE SIGMA GROUP. CONTRACTOR MUST VERIFY CONTROL POINTS IN THE FIELD AND WITH THE SIGMA GROUP. TO CONFIRM THEY ARE VALID PRIOR TO CONSTRUCTING THE SITE LAYOUT.
10. CONTRACTOR IS SOLELY RESPONSIBLE TO PROVIDE ADVANCED NOTICE TO THE DESIGNATED "ONE CALL SYSTEM" NOT LESS THAN THREE WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION REQUIRED TO PERFORM WORK CONTAINED ON ATTACHED PLAN SET.
11. EXISTING CONDITIONS SHALL BE FIELD VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORK. DISCREPANCIES ARE TO BE REPORTED TO VAMC COTR PRIOR TO STARTING WORK.

ADDITIONAL NOTES:

CONTRACTOR TO INSTALL EROSION CONTROL AND SEED AND MULCH ALL DISTURBED AREAS WITHIN THE PROJECT EXTENTS. SEE C105 AND C106 FOR PLANS AND DETAILS.

RESULTING NET GRADING = 412 CY CUT (EXCESS)

CONTRACTOR TO HAUL EXCESS FILL OFF-SITE TO A LOCATION OWNED OR PERMITTED FOR USE BY CONTRACTOR

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2002-2012
ASHLAND, WI
111 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

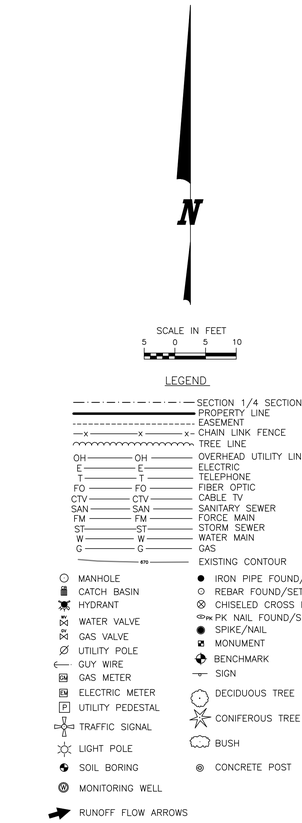
Drawing Title	Site Grading and Drainage Plan
Approved: Project Director	
Project Title	Replace Electrical Sub-Station
Location	VA Medical Center,Milwaukee, WI
Date	30 July 2012
Checked By:	DJC
Drawn By:	MAB
Project Number	695-12-118
Building Number	115
Drawing Number	C103

CONSTRUCTION DOCUMENTS

Office of Facilities Management

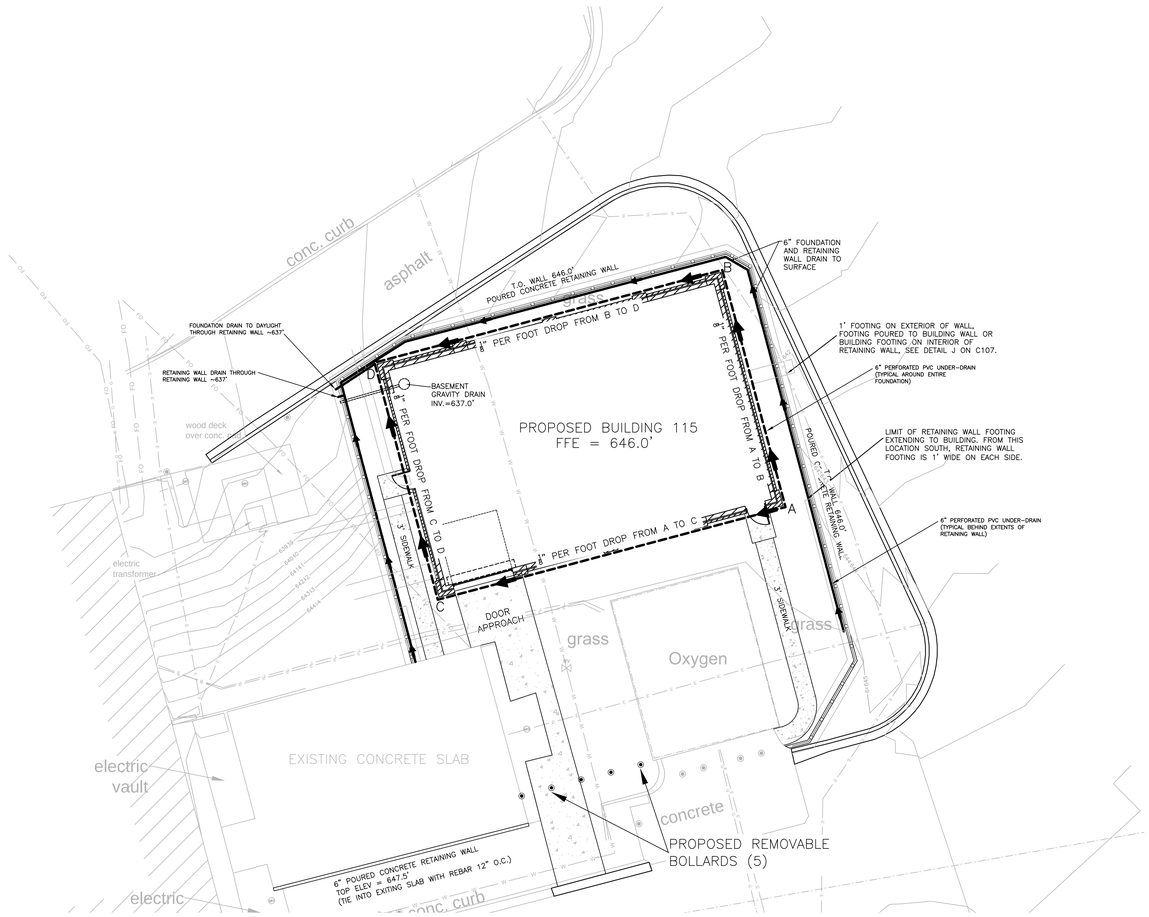
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978



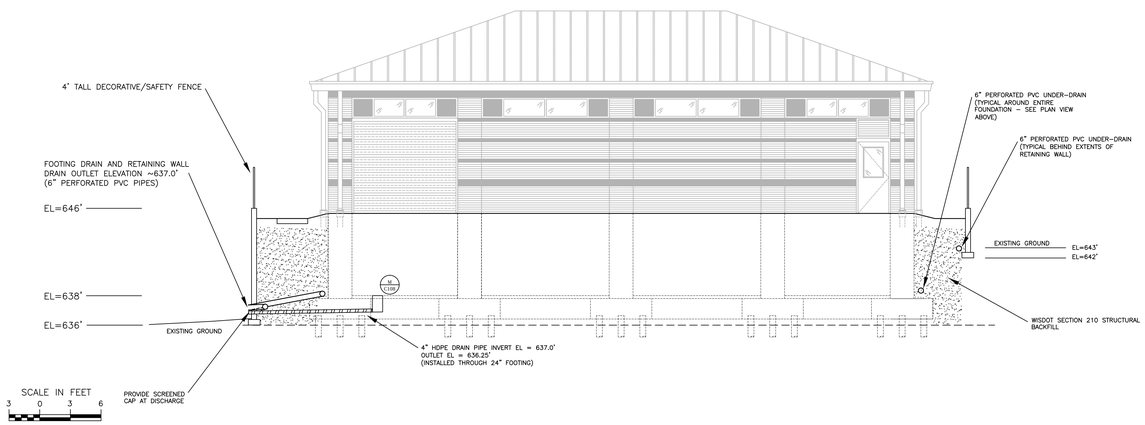
LEGEND

- SECTION 1/4 SECTION LINE
- PROPERTY LINE
- EASEMENT
- CHAIN LINK FENCE
- TREE LINE
- OVERHEAD UTILITY LINE
- ELECTRIC
- TELEPHONE
- FIBER OPTIC
- CABLE TV
- SANITARY SEWER
- FORCE MAIN
- STORM SEWER
- WATER MAIN
- GAS
- EXISTING CONTOUR
- MANHOLE
- CATCH BASIN
- HYDRANT
- WATER VALVE
- GAS VALVE
- UTILITY POLE
- GUY WIRE
- GAS METER
- ELECTRIC METER
- UTILITY PEDESTAL
- TRAFFIC SIGNAL
- LIGHT POLE
- SOIL BORING
- MONITORING WELL
- RUNOFF FLOW ARROWS
- TOP OF RETAINING WALL
- IRON PIPE FOUND/SET
- REBAR FOUND/SET
- CHISELED CROSS FOUND/SET
- PK NAIL FOUND/SET
- SPIKE/NAIL
- MONUMENT
- BENCHMARK
- SIGN
- DECIDUOUS TREE
- CONIFEROUS TREE
- BUSH
- CONCRETE POST



GENERAL NOTES

1. EXISTING CONDITIONS AND TOPOGRAPHIC FEATURES, INCLUDING UTILITIES, HAVE BEEN LOCATED FROM FIELD LOCATES BY ALL LINES, INC AND SURVEY BY THE SIGMA GROUP, DATED MARCH, 2012.
2. AWARDED CONTRACTOR MUST COMPLY WITH THE CONDITIONS OF PERMITS OBTAINED IN CONJUNCTION WITH THIS WORK. COPIES OF PERMITS, IF ANY, ARE AVAILABLE IN PROJECT MANUAL OR ARE AVAILABLE FROM THE OWNER UPON REQUEST.
3. UTILITIES SHOWN ARE AS REPORTED TO THE DESIGN TEAM AND INDICATED ON THE EXISTING UTILITY BASE PLAN, NO ATTEMPTS HAVE BEEN MADE TO EXCAVATE, UNCOVER OR EXPOSE UNDERGROUND UTILITIES.
4. ROADWAY, GRADING AND OTHER SITE WORK MUST BE COMPLETED IN ACCORDANCE WITH THE STANDARD VA SPECIFICATIONS.
5. THE CONTRACTOR SHALL COMPLY WITH PERTINENT PROVISIONS OF THE "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION" ISSUED BY THE U.S. DEPARTMENT OF LABOR.
6. PERIODIC TEMPORARY TRAFFIC CONTROL MAY BE REQUIRED IN ORDER TO COMPLETE SITE WORK. CONTRACTOR MUST NOTIFY CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR) 24 HRS. PRIOR TO IMPACTING ANY TRAFFIC LANES. TEMPORARY TRAFFIC CONTROL WILL BE INCIDENTAL TO THE CONSTRUCTION ACTIVITIES.
7. THE CONTRACTOR SHALL PROTECT UTILITIES AND SITE IMPROVEMENTS TO REMAIN. ANY DAMAGE TO EXISTING UTILITIES OR SITE IMPROVEMENTS TO REMAIN SHALL BE REPAIRED BY CONTRACTOR. ANY NECESSARY REPAIRS MUST BE REPAIRED TO OWNER'S SPECIFICATIONS AND COORDINATED WITH THE VAMC COTR. NECESSARY REPAIRS FOR DAMAGE WILL BE COMPLETED AT THE CONTRACTOR'S EXPENSE.
8. IN THE EVENT OF ANY DISCREPANCIES AND/OR ERRORS FOUND IN THE DRAWINGS, OR IF PROBLEMS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE COTR AND ENGINEER IMMEDIATELY, PRIOR TO PROCEEDING WITH WORK. IF ENGINEER IS NOT NOTIFIED IMMEDIATELY, CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY REVISIONS TO PLANS AND SPECIFICATIONS, AS WELL AS REPAIRS DO TO CONTINUED CONSTRUCTION AFTER AN ERROR OR DISCREPANCY IS FOUND.
9. CONTROL POINTS AND COORDINATES LISTED ARE BASED ON THE SURVEY PREPARED BY THE SIGMA GROUP. CONTRACTOR MUST VERIFY CONTROL POINTS IN THE FIELD AND WITH THE SIGMA GROUP. TO CONFIRM THEY ARE VALID PRIOR TO CONSTRUCTING THE SITE LAYOUT.
10. CONTRACTOR IS SOLELY RESPONSIBLE TO PROVIDE ADVANCED NOTICE TO THE DESIGNATED "ONE CALL SYSTEM" NOT LESS THAN THREE WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION REQUIRED TO PERFORM WORK CONTAINED ON ATTACHED PLAN SET.
11. EXISTING CONDITIONS SHALL BE FIELD VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORK. DISCREPANCIES ARE TO BE REPORTED TO VAMC COTR PRIOR TO STARTING WORK.



Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

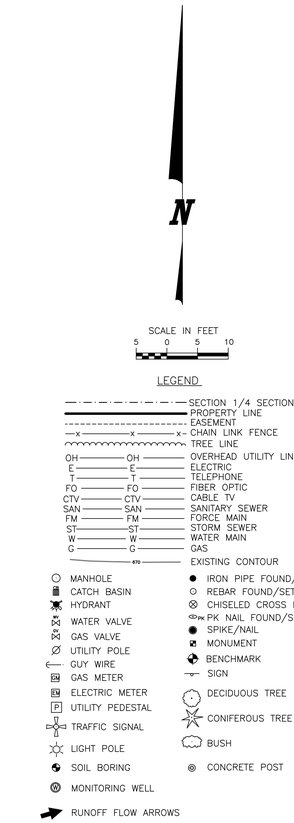
CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2002-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI, 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
833 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI, 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

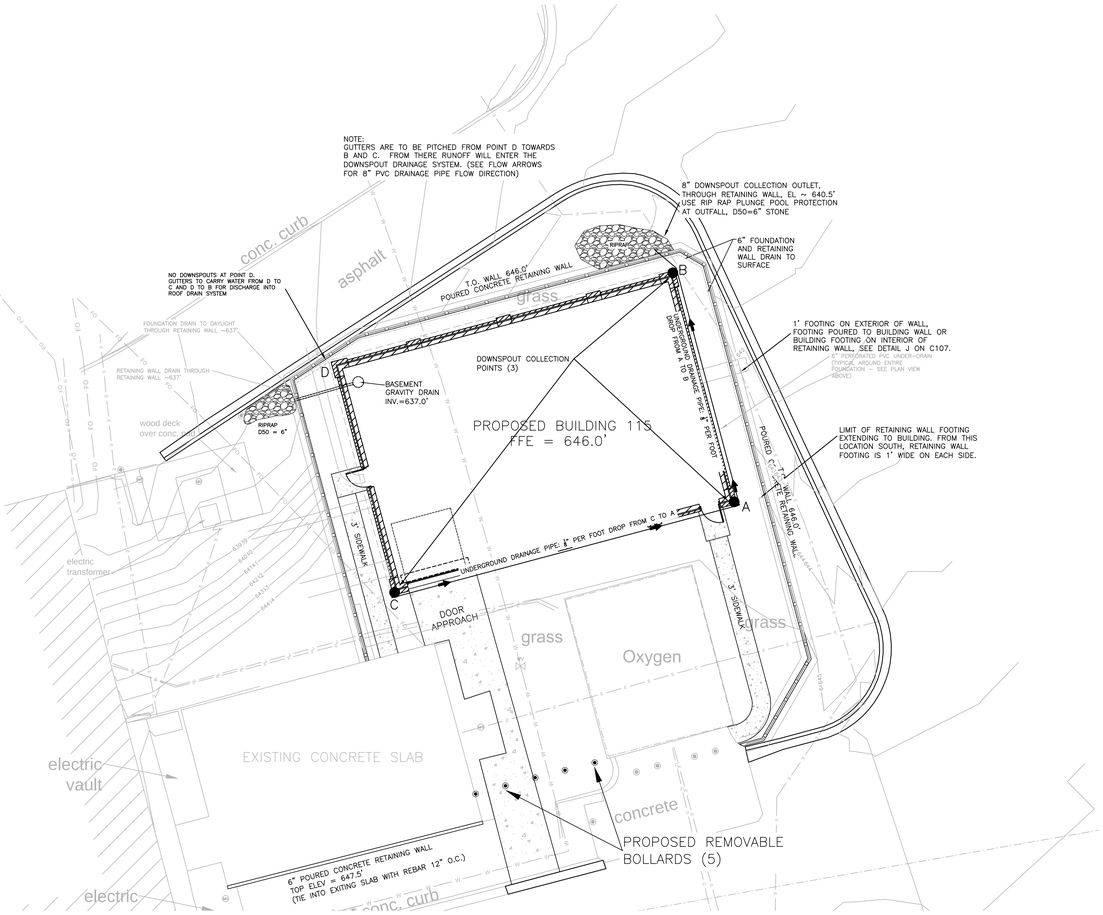
CONSTRUCTION DOCUMENTS

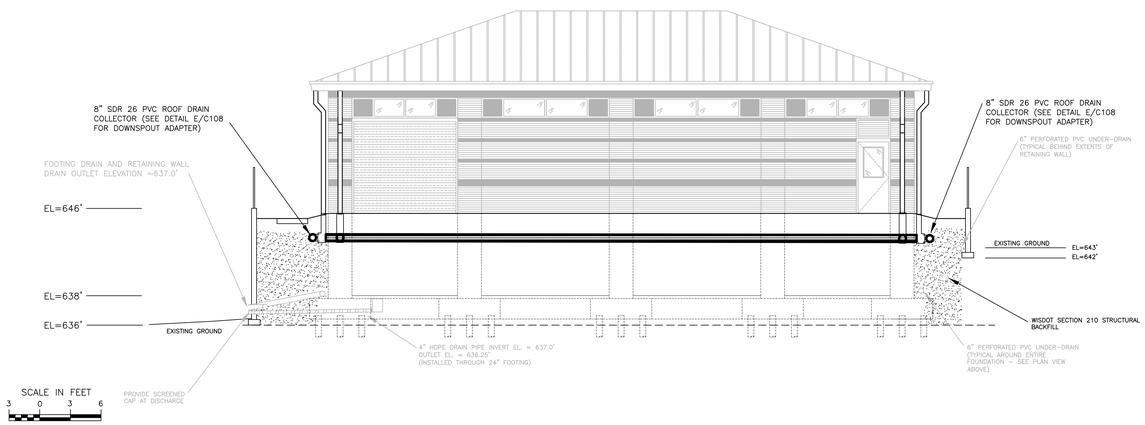
Drawing Title	Foundation and Retaining Wall Drain System
Project Title	Replace Electrical Sub-Station
Project Number	695-12-118
Building Number	115
Approved: Project Director	
Location	VA Medical Center,Milwaukee, WI
Drawing Number	C103.1
Date	30 July 2012
Checked By:	DJC
Drawn By:	MAB

Office of Facilities Management
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978







GENERAL NOTES

1. EXISTING CONDITIONS AND TOPOGRAPHIC FEATURES, INCLUDING UTILITIES, HAVE BEEN LOCATED FROM FIELD LOCATES BY ALL LINES, INC AND SURVEY BY THE SIGMA GROUP, DATED MARCH, 2012.
2. AWARDED CONTRACTOR MUST COMPLY WITH THE CONDITIONS OF PERMITS OBTAINED IN CONJUNCTION WITH THIS WORK. COPIES OF PERMITS, IF ANY, ARE AVAILABLE IN PROJECT MANUAL OR ARE AVAILABLE FROM THE OWNER UPON REQUEST.
3. UTILITIES SHOWN ARE AS REPORTED TO THE DESIGN TEAM AND INDICATED ON THE EXISTING UTILITY BASE PLAN, NO ATTEMPTS HAVE BEEN MADE TO EXCAVATE, UNCOVER OR EXPOSE UNDERGROUND UTILITIES.
4. ROADWAY, GRADING AND OTHER SITE WORK MUST BE COMPLETED IN ACCORDANCE WITH THE STANDARD VA SPECIFICATIONS.
5. THE CONTRACTOR SHALL COMPLY WITH PERTINENT PROVISIONS OF THE "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION" ISSUED BY THE U.S. DEPARTMENT OF LABOR.
6. PERIODIC TEMPORARY TRAFFIC CONTROL MAY BE REQUIRED IN ORDER TO COMPLETE SITE WORK. CONTRACTOR MUST NOTIFY CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR) 24 HRS. PRIOR TO IMPACTING ANY TRAFFIC LANES. TEMPORARY TRAFFIC CONTROL WILL BE INCIDENTAL TO THE CONSTRUCTION ACTIVITIES.
7. THE CONTRACTOR SHALL PROTECT UTILITIES AND SITE IMPROVEMENTS TO REMAIN. ANY DAMAGE TO EXISTING UTILITIES OR SITE IMPROVEMENTS TO REMAIN SHALL BE REPAIRED BY CONTRACTOR. ANY NECESSARY REPAIRS MUST BE REPAIRED TO OWNER'S SPECIFICATIONS AND COORDINATED WITH THE VAMC COTR. NECESSARY REPAIRS FOR DAMAGE WILL BE COMPLETED AT THE CONTRACTOR'S EXPENSE.
8. IN THE EVENT OF ANY DISCREPANCIES AND/OR ERRORS FOUND IN THE DRAWINGS, OR IF PROBLEMS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE COTR AND ENGINEER IMMEDIATELY, PRIOR TO PROCEEDING WITH WORK. IF ENGINEER IS NOT NOTIFIED IMMEDIATELY, CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY REVISIONS TO PLANS AND SPECIFICATIONS, AS WELL AS REPAIRS DO TO CONTINUED CONSTRUCTION AFTER AN ERROR OR DISCREPANCY IS FOUND.
9. CONTROL POINTS AND COORDINATES LISTED ARE BASED ON THE SURVEY PREPARED BY THE SIGMA GROUP. CONTRACTOR MUST VERIFY CONTROL POINTS IN THE FIELD AND WITH THE SIGMA GROUP. TO CONFIRM THEY ARE VALID PRIOR TO CONSTRUCTING THE SITE LAYOUT.
10. CONTRACTOR IS SOLELY RESPONSIBLE TO PROVIDE ADVANCED NOTICE TO THE DESIGNATED "ONE CALL SYSTEM" NOT LESS THAN THREE WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION REQUIRED TO PERFORM WORK CONTAINED ON ATTACHED PLAN SET.
11. EXISTING CONDITIONS SHALL BE FIELD VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORK. DISCREPANCIES ARE TO BE REPORTED TO VAMC COTR PRIOR TO STARTING WORK.

ADDITIONAL NOTES:

CONTRACTOR IS TO INSTALL EROSION CONTROL AND SEED AND MULCH ALL DISTURBED AREAS WITHIN THE PROJECT EXTENTS. SEE C105 AND C106 FOR PLANS AND DETAILS.

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

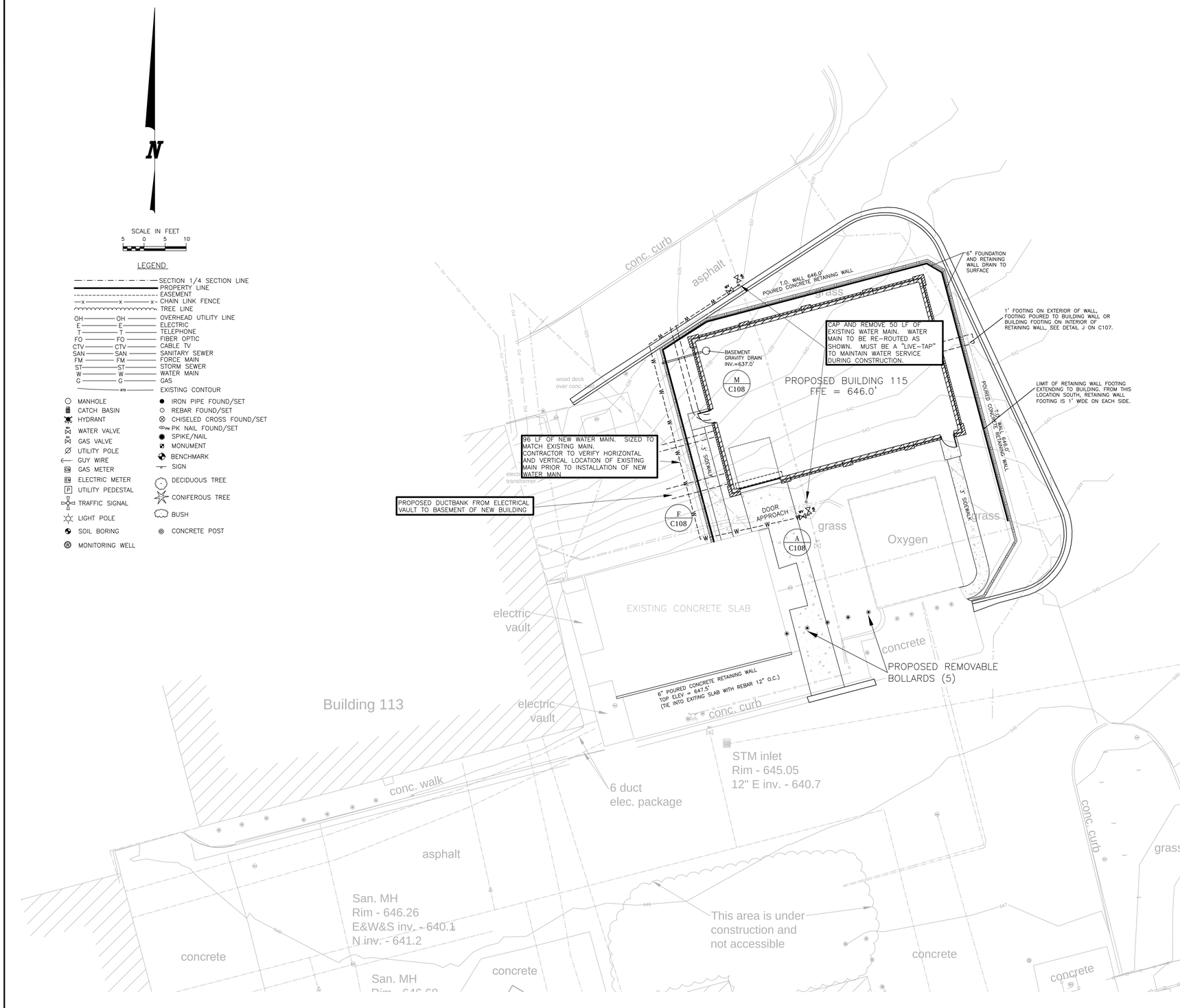
CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2002-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI, 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
833 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI, 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

CONSTRUCTION DOCUMENTS

Drawing Title	Roof Drain System
Project Title	Replace Electrical Sub-Station
Project Number	695-12-118
Building Number	115
Approved: Project Director	
Location	VA Medical Center,Milwaukee, WI
Date	30 July 2012
Checked By:	DJC
Drawn By:	MAB
Drawing Number	C103.2

Office of Facilities Management
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978



GENERAL NOTES

1. EXISTING CONDITIONS AND TOPOGRAPHIC FEATURES, INCLUDING UTILITIES, HAVE BEEN LOCATED FROM FIELD LOCATES BY ALL LINES, INC AND SURVEY BY THE SIGMA GROUP, DATED MARCH, 2012.
2. AWARDED CONTRACTOR MUST COMPLY WITH THE CONDITIONS OF PERMITS OBTAINED IN CONJUNCTION WITH THIS WORK. COPIES OF PERMITS, IF ANY, ARE AVAILABLE IN PROJECT MANUAL OR ARE AVAILABLE FROM THE OWNER UPON REQUEST.
3. UTILITIES SHOWN ARE AS REPORTED TO THE DESIGN TEAM AND INDICATED ON THE EXISTING UTILITY BASE PLAN, NO ATTEMPTS HAVE BEEN MADE TO EXCAVATE, UNCOVER OR EXPOSE UNDERGROUND UTILITIES.
4. ROADWAY, GRADING AND OTHER SITE WORK MUST BE COMPLETED IN ACCORDANCE WITH THE STANDARD VA SPECIFICATIONS.
5. THE CONTRACTOR SHALL COMPLY WITH PERTINENT PROVISIONS OF THE "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION" ISSUED BY THE U.S. DEPARTMENT OF LABOR.
6. PERIODIC TEMPORARY TRAFFIC CONTROL MAY BE REQUIRED IN ORDER TO COMPLETE SITE WORK. CONTRACTOR MUST NOTIFY CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR) 24 HRS. PRIOR TO IMPACTING ANY TRAFFIC LANES. TEMPORARY TRAFFIC CONTROL WILL BE INCIDENTAL TO THE CONSTRUCTION ACTIVITIES.
7. THE CONTRACTOR SHALL PROTECT UTILITIES AND SITE IMPROVEMENTS TO REMAIN. ANY DAMAGE TO EXISTING UTILITIES OR SITE IMPROVEMENTS TO REMAIN SHALL BE REPAIRED BY CONTRACTOR. ANY NECESSARY REPAIRS MUST BE REPAIRED TO OWNER'S SPECIFICATIONS AND COORDINATED WITH THE VAMC COTR. NECESSARY REPAIRS FOR DAMAGE WILL BE COMPLETED AT THE CONTRACTOR'S EXPENSE.
8. IN THE EVENT OF ANY DISCREPANCIES AND/OR ERRORS FOUND IN THE DRAWINGS, OR IF PROBLEMS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE COTR AND ENGINEER IMMEDIATELY, PRIOR TO PROCEEDING WITH WORK. IF ENGINEER IS NOT NOTIFIED IMMEDIATELY, CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY REVISIONS TO PLANS AND SPECIFICATIONS, AS WELL AS REPAIRS DO TO CONTINUED CONSTRUCTION AFTER AN ERROR OR DISCREPANCY IS FOUND.
9. CONTROL POINTS AND COORDINATES LISTED ARE BASED ON THE SURVEY PREPARED BY THE SIGMA GROUP. CONTRACTOR MUST VERIFY CONTROL POINTS IN THE FIELD AND WITH THE SIGMA GROUP. TO CONFIRM THEY ARE VALID PRIOR TO CONSTRUCTING THE SITE LAYOUT.
10. CONTRACTOR IS SOLELY RESPONSIBLE TO PROVIDE ADVANCED NOTICE TO THE DESIGNATED "ONE CALL SYSTEM" NOT LESS THAN THREE WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION REQUIRED TO PERFORM WORK CONTAINED ON ATTACHED PLAN SET.
11. EXISTING CONDITIONS SHALL BE FIELD VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORK. DISCREPANCIES ARE TO BE REPORTED TO VAMC COTR PRIOR TO STARTING WORK.

UNVERIFIED SITE CONDITION:

CONTRACTOR NOTES:

SIZE AND MATERIAL OF NEW WATER MAIN TO MATCH EXISTING WATER MAIN PIPE. **ASSUME 6" DUCTILE IRON FOR BIDDING PURPOSES.**

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

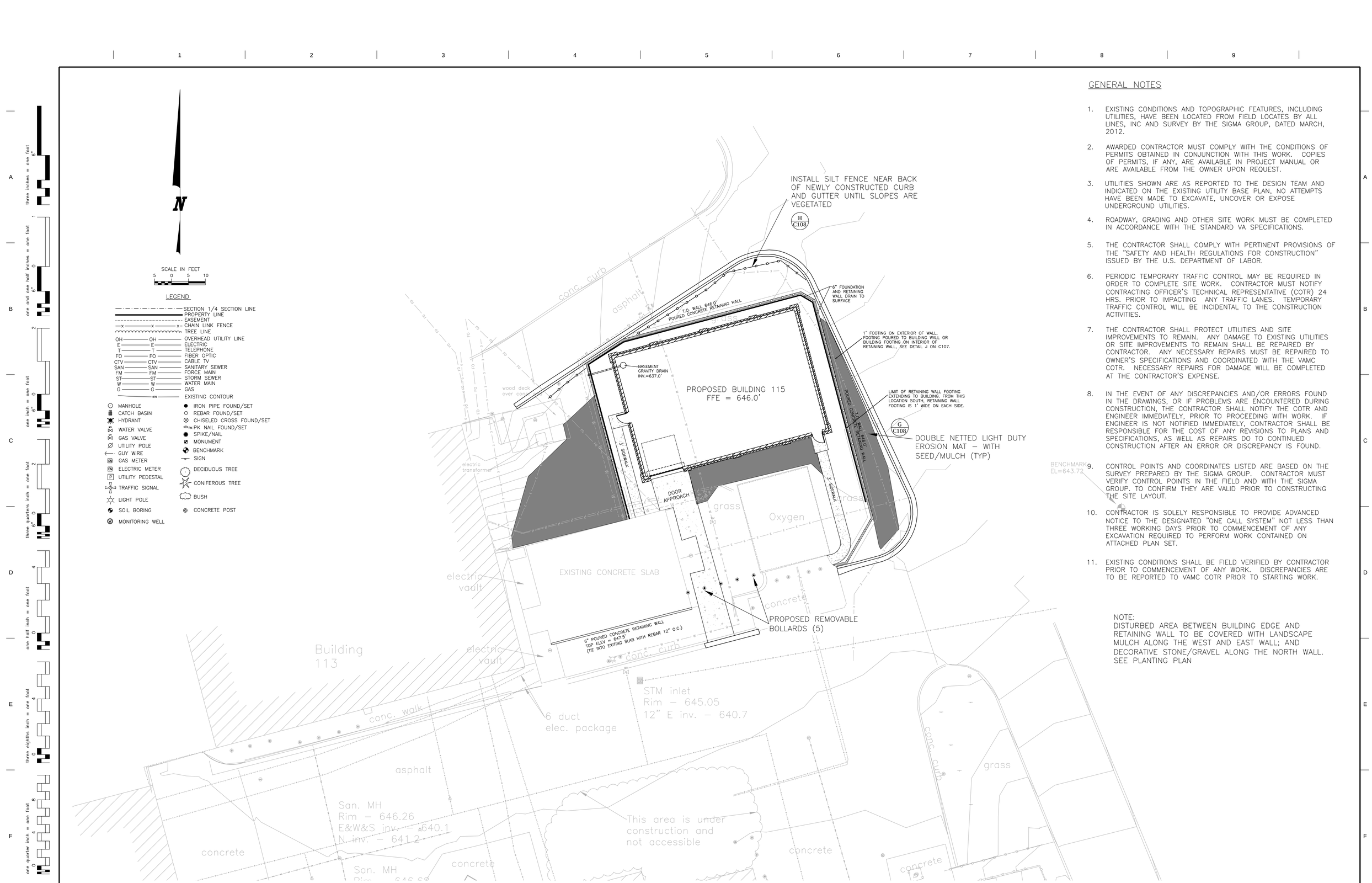
CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2002-2012
ASHLAND, WI
111 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

CONSTRUCTION DOCUMENTS

Drawing Title	Site Utility Plan
Approved: Project Director	
Project Title	Replace Electrical Sub-Station
Location	VA Medical Center,Milwaukee, WI
Date	30 July 2012
Checked By:	DJC
Drawn By:	MAB
Project Number	695-12-118
Building Number	115
Drawing Number	C104

Office of Facilities Management
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978



GENERAL NOTES

1. EXISTING CONDITIONS AND TOPOGRAPHIC FEATURES, INCLUDING UTILITIES, HAVE BEEN LOCATED FROM FIELD LOCATES BY ALL LINES, INC AND SURVEY BY THE SIGMA GROUP, DATED MARCH, 2012.
2. AWARDED CONTRACTOR MUST COMPLY WITH THE CONDITIONS OF PERMITS OBTAINED IN CONJUNCTION WITH THIS WORK. COPIES OF PERMITS, IF ANY, ARE AVAILABLE IN PROJECT MANUAL OR ARE AVAILABLE FROM THE OWNER UPON REQUEST.
3. UTILITIES SHOWN ARE AS REPORTED TO THE DESIGN TEAM AND INDICATED ON THE EXISTING UTILITY BASE PLAN, NO ATTEMPTS HAVE BEEN MADE TO EXCAVATE, UNCOVER OR EXPOSE UNDERGROUND UTILITIES.
4. ROADWAY, GRADING AND OTHER SITE WORK MUST BE COMPLETED IN ACCORDANCE WITH THE STANDARD VA SPECIFICATIONS.
5. THE CONTRACTOR SHALL COMPLY WITH PERTINENT PROVISIONS OF THE "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION" ISSUED BY THE U.S. DEPARTMENT OF LABOR.
6. PERIODIC TEMPORARY TRAFFIC CONTROL MAY BE REQUIRED IN ORDER TO COMPLETE SITE WORK. CONTRACTOR MUST NOTIFY CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR) 24 HRS. PRIOR TO IMPACTING ANY TRAFFIC LANES. TEMPORARY TRAFFIC CONTROL WILL BE INCIDENTAL TO THE CONSTRUCTION ACTIVITIES.
7. THE CONTRACTOR SHALL PROTECT UTILITIES AND SITE IMPROVEMENTS TO REMAIN. ANY DAMAGE TO EXISTING UTILITIES OR SITE IMPROVEMENTS TO REMAIN SHALL BE REPAIRED BY CONTRACTOR. ANY NECESSARY REPAIRS MUST BE REPAIRED TO OWNER'S SPECIFICATIONS AND COORDINATED WITH THE VAMC COTR. NECESSARY REPAIRS FOR DAMAGE WILL BE COMPLETED AT THE CONTRACTOR'S EXPENSE.
8. IN THE EVENT OF ANY DISCREPANCIES AND/OR ERRORS FOUND IN THE DRAWINGS, OR IF PROBLEMS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE COTR AND ENGINEER IMMEDIATELY, PRIOR TO PROCEEDING WITH WORK. IF ENGINEER IS NOT NOTIFIED IMMEDIATELY, CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY REVISIONS TO PLANS AND SPECIFICATIONS, AS WELL AS REPAIRS DO TO CONTINUED CONSTRUCTION AFTER AN ERROR OR DISCREPANCY IS FOUND.
9. CONTROL POINTS AND COORDINATES LISTED ARE BASED ON THE SURVEY PREPARED BY THE SIGMA GROUP. CONTRACTOR MUST VERIFY CONTROL POINTS IN THE FIELD AND WITH THE SIGMA GROUP. TO CONFIRM THEY ARE VALID PRIOR TO CONSTRUCTING THE SITE LAYOUT.
10. CONTRACTOR IS SOLELY RESPONSIBLE TO PROVIDE ADVANCED NOTICE TO THE DESIGNATED "ONE CALL SYSTEM" NOT LESS THAN THREE WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION REQUIRED TO PERFORM WORK CONTAINED ON ATTACHED PLAN SET.
11. EXISTING CONDITIONS SHALL BE FIELD VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORK. DISCREPANCIES ARE TO BE REPORTED TO VAMC COTR PRIOR TO STARTING WORK.

NOTE:
DISTURBED AREA BETWEEN BUILDING EDGE AND RETAINING WALL TO BE COVERED WITH LANDSCAPE MULCH ALONG THE WEST AND EAST WALL; AND DECORATIVE STONE/GRAVEL ALONG THE NORTH WALL. SEE PLANTING PLAN

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

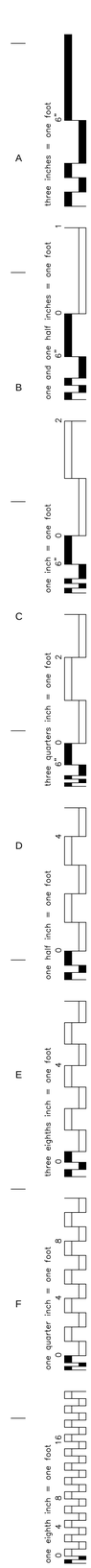
CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2002-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6023
MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

CONSTRUCTION DOCUMENTS

Drawing Title	Erosion Control Plan
Project Title	Replace Electrical Sub-Station
Project Number	695-12-118
Building Number	115
Approved: Project Director	
Location	VA Medical Center,Milwaukee, WI
Drawing Number	C105
Date	30 July 2012
Checked By:	DJC
Drawn By:	MAB

Office of Facilities Management
Department of Veterans Affairs

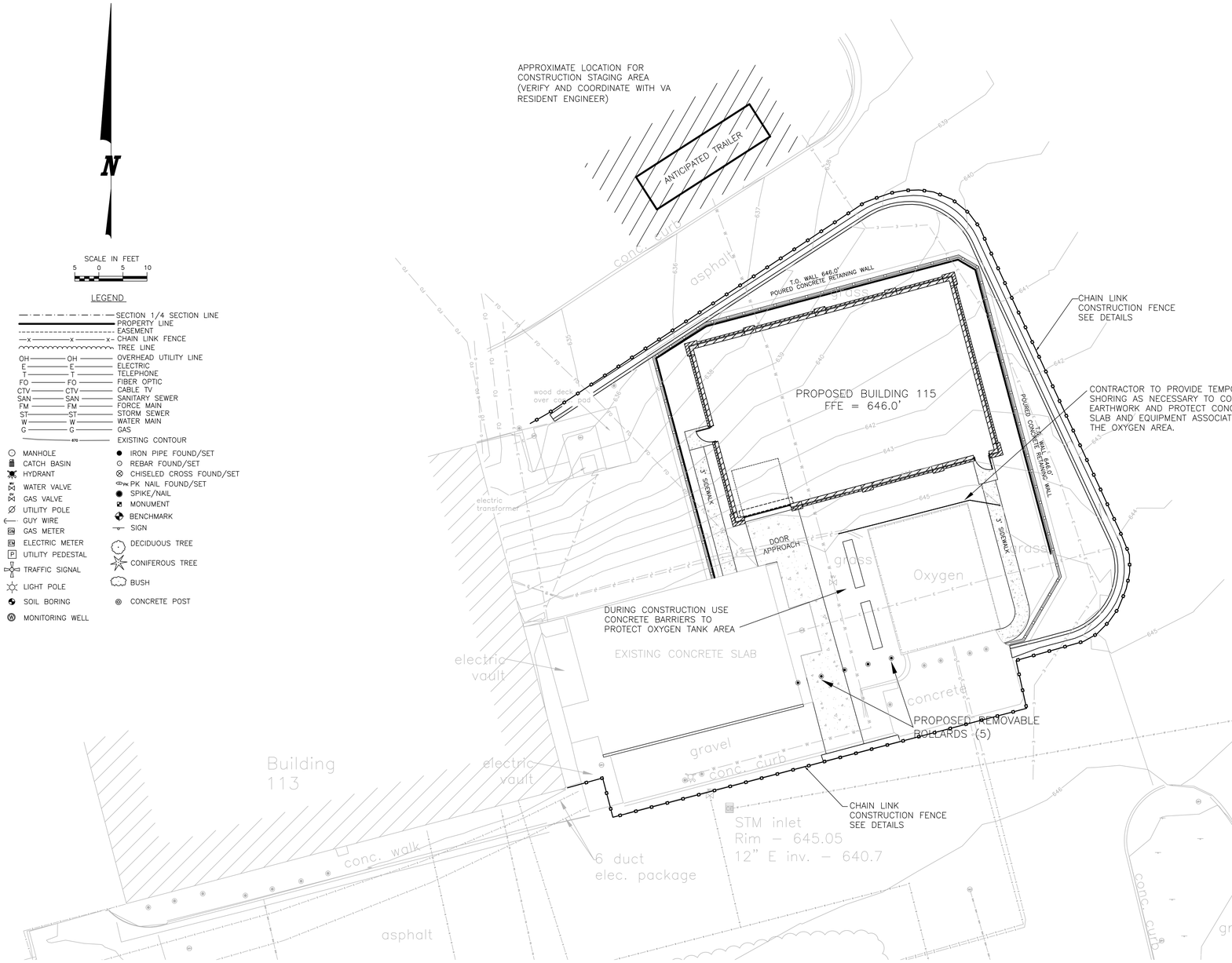
VA FORM 08-6231, OCT 1978



LEGEND

- SECTION 1/4 SECTION LINE
- PROPERTY LINE
- EASEMENT
- CHAIN LINK FENCE
- TREE LINE
- OVERHEAD UTILITY LINE
- ELECTRIC
- TELEPHONE
- FIBER OPTIC
- CABLE TV
- SANITARY SEWER
- FORCE MAIN
- STORM SEWER
- WATER MAIN
- GAS
- EXISTING CONTOUR

- MANHOLE
- CATCH BASIN
- HYDRANT
- WATER VALVE
- GAS VALVE
- UTILITY POLE
- GUY WIRE
- GAS METER
- ELECTRIC METER
- UTILITY PEDESTAL
- TRAFFIC SIGNAL
- LIGHT POLE
- SOIL BORING
- MONITORING WELL
- IRON PIPE FOUND/SET
- REBAR FOUND/SET
- CHISELED CROSS FOUND/SET
- PK NAIL FOUND/SET
- SPIKE/NAIL
- MONUMENT
- BENCHMARK
- SIGN
- DECIDUOUS TREE
- CONIFEROUS TREE
- BUSH
- CONCRETE POST

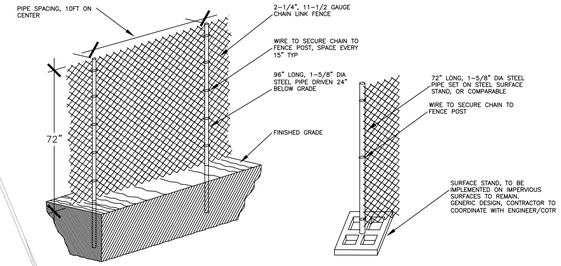


PHASING NOTES

1. SET UP STAGING AREA
2. PROVIDE TEMPORARY SITE SIGNAGE AND CONSTRUCTION FENCING.
3. OBTAIN NECESSARY PERMITS AND CLEARANCES WITH VA AND REGULATORY AGENCIES.
4. CONDUCT SITE DEMOLITION ACTIVITIES, INCLUDING C&G, ROAD, BOLLARDS, TREES, ETC (REFER TO C101).
5. PROVIDE ADEQUATE EROSION CONTROL AND POLLUTION PREVENTION DURING DEMOLITION (SAW–CUTTING, ETC.)
6. COMPLETE WATER MAIN UTILITY RELOCATE AND DEMOLITION OF EXISTING WATER MAIN PIPING UNDER PROPOSED FOOTPRINT OF NEW BUILDING.
7. BEGIN CONSTRUCTION OF BUILDING 115 FOUNDATION.
8. PROVIDE SHORING ON NORTH SIDE OF OXYGEN TANK PAD, IF NECESSARY TO AVOID SOIL MOVEMENT AND UNSAFE WORKING CONDITIONS.
9. IN CONJUNCTION WITH FOUNDATION CONSTRUCTION, COMPLETE CONSTRUCTION OF RETAINING WALL.
10. AFTER SUBSTANTIAL COMPLETION OF RETAINING WALL, CONSTRUCT 9" CURB & GUTTER IMPROVEMENTS, PATCH ROAD (IN LOCATION OF WATER MAIN RELOCATION) AND BEGIN STABILIZING SITE.
11. COMPLETE GRADING ACTIVITIES WORKING IN CONJUNCTION WITH REQUIRED FILLS OVER PROPOSED ELECTRICAL CONDUIT.
12. PROVIDE SITE STABILIZATION FOR DISTURBED AREAS.
13. COMPLETE BUILDING CONSTRUCTION.
14. REFER TO ELECTRICAL PHASING PLAN FOR FURTHER DETAILS ON EQUIPMENT PHASING AND DEMOLITION OF THE EXISTING 115 BUILDING.

GENERAL NOTE:

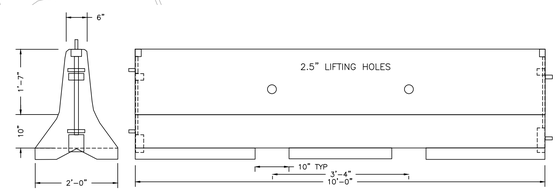
CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR GENERATING SITE CONSTRUCTION PHASING PLAN AND COORDINATING WORK WITH VA COR AND RESIDENT ENGINEER. PHASING NOTES ABOVE TO BE USED AS GENERAL GUIDELINES FOR THE PURPOSE OF BIDDING THE PROJECT. CONTRACTOR MAY USE PHASING NOTES TO GENERATE THE CONSTRUCTION PHASING PLAN, WHICH IS REQUIRED FOR THIS PROJECT AND MUST BE APPROVED BY VA COR AND/OR RESIDENT ENGINEER.



NOTES:
1. CHAIN LINK CONSTRUCTION FENCING IS TO BE INSTALLED PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES.
2. CHAIN LINK CONSTRUCTION FENCE SHALL BE A MINIMUM OF 72" ABOVE GRADE.
3. CHAIN LINK CONSTRUCTION FENCE SHALL HAVE THE FOLLOWING PROPERTIES:
   – FENCE SHALL BE INSPECTED DAILY AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED FOR THE DAY. IF DAMAGED, FENCING SHALL BE REPAIRED IMMEDIATELY.
   – WHERE CHAIN LINK CONSTRUCTION FENCE IS SHOWN ON IMPERVIOUS SURFACES, SUCH AS THE EXISTING BRICK PAVERS IN THE COURTYARD AREA, POST ARE TO BE ANCHORED ON SURFACE STANDS. STEEL PIPE IS NOT TO BE DRIVEN BELOW GRADE ON IMPERVIOUS SURFACES TO REMAIN.

TEMPORARY CHAIN LINK CONSTRUCTION FENCE
SCALE: NONE

NOTE:
USE JERSEY BARRIER OR COMPARABLE TO PROTECT OXYGEN TANK DURING CONSTRUCTION.



JERSEY BARRIER DETAIL
SCALE: NONE

CONSTRUCTION DOCUMENTS

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

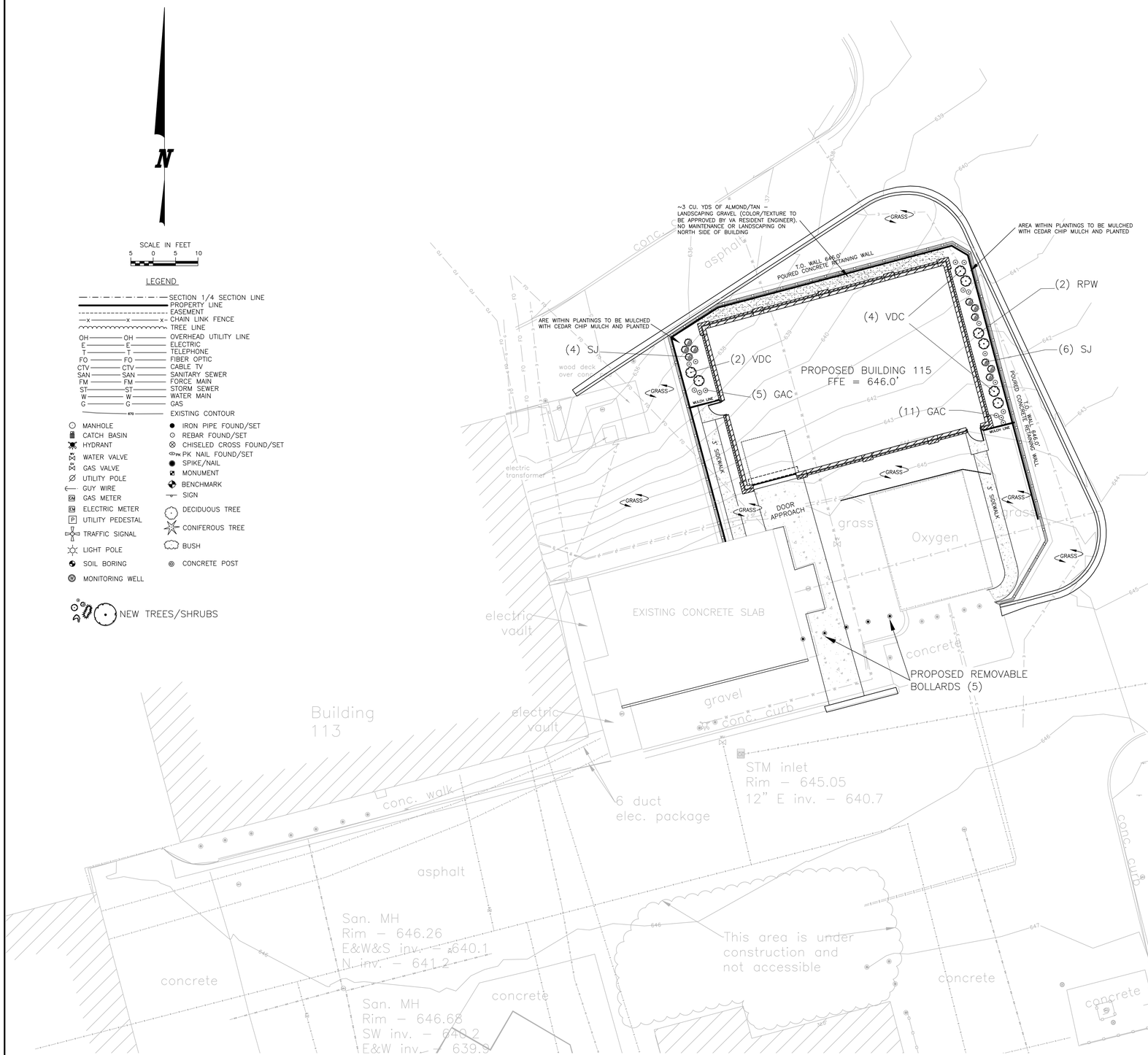
PROJECT LEADER/STRUCTURAL ENGINEER:

CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2002-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6020
MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

Drawing Title	Construction Phasing Plan
Project Title	Replace Electrical Sub-Station
Project Number	695-12-118
Building Number	115
Approved: Project Director	
Location	VA Medical Center,Milwaukee, WI
Drawing Number	C106
Date	30 July 2012
Checked By:	DJC
Drawn By:	MAB

Office of Facilities Management
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978



DECIDUOUS SHRUBS

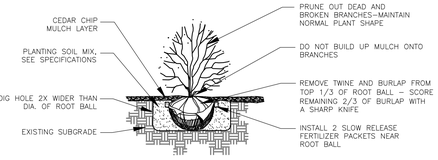
GAC: Green Mound Alpine Currant (Ribes Alpinum, Green Mound) – 15" size, transported in a pot

RPW: Red Prince Weigela (Weigela Florida, Red Prince) – 24" size, transported in a pot.

VDC: Blue Muffin Viburnum (Viburnum Dentatum, Christom) – 24" size, transport in a pot, Plant to have balanced branching.

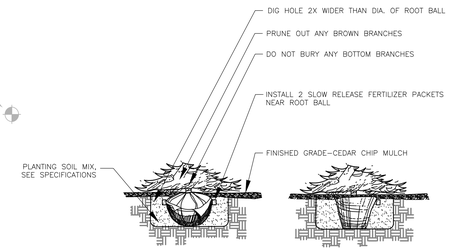
EVERGREEN SHRUBS

SJ: Skandia Juniper (Juniperus Sabina, Skandia) – 18" size, transport in burlap or pot, Plant is required to have uniform branching.

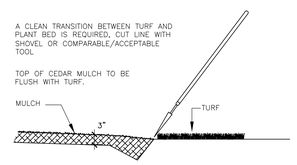


DECIDUOUS SHRUB PLANTING DETAIL
NOT TO SCALE

BENCHMARK
EL=643.72



EVERGREEN SHRUB PLANTING DETAIL
NOT TO SCALE



SHOVEL CUT PLANT BED EDGING DETAIL
NOT TO SCALE

PLANTING NOTES:

AREA TO BE MULCHED WITH CEDAR CHIP MULCH OR COMPARABLE. COORDINATE COLOR AND TYPE OF MULCH WITH VA RESIDENT ENGINEER.

CONSTRUCTION DOCUMENTS

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC.
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

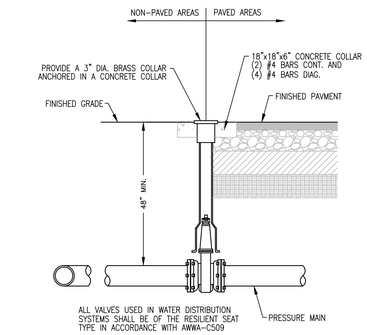
PROJECT LEADER/STRUCTURAL ENGINEER:

CHEQUAMEGON BAY ENGINEERING, INC.
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

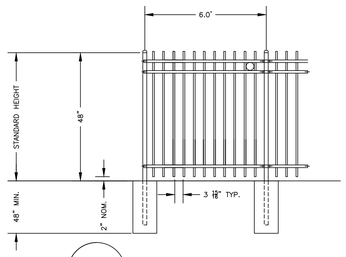
Drawing Title	Site Planting Plan
Approved: Project Director	
Project Title	Replace Electrical Sub-Station
Location	VA Medical Center,Milwaukee, WI
Date	30 July 2012
Checked By:	DJC
Drawn By:	MAB
Project Number	695-12-118
Building Number	115
Drawing Number	C107

Office of Facilities Management
Department of Veterans Affairs

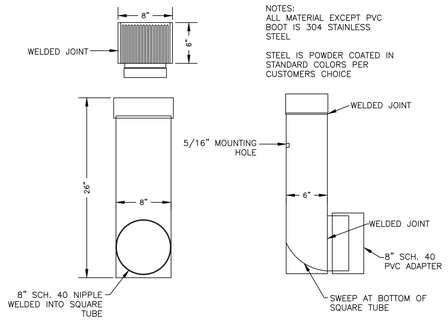
VA FORM 08-6231, OCT 1978



A C108 TYPICAL VALVE SETTING DETAIL
SCALE: NONE



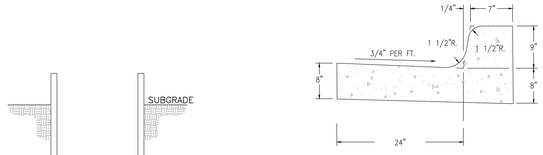
B C108 ORNAMENTAL ALUMINUM FENCE
SCALE: NONE

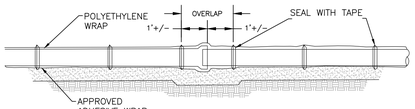


NOTES:
ALL MATERIAL EXCEPT PVC BOOT IS 304 STAINLESS STEEL

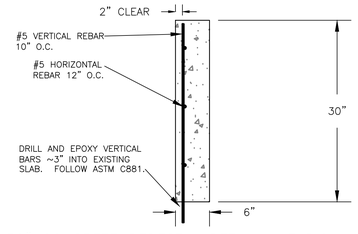
STEEL IS POWDER COATED IN STANDARD COLORS PER CUSTOMERS CHOICE

E C108 DOWNSPOUT ADAPTOR
SCALE: NONE

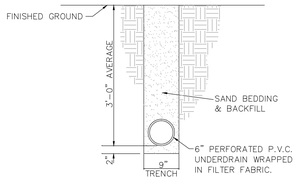




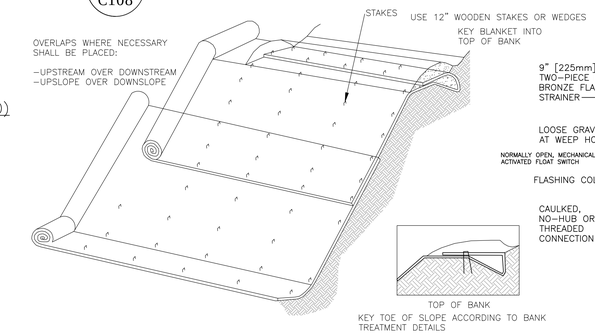
F C108 STANDARD WATER MAIN TRENCH SECTION



30" CONCRETE PEDESTAL DETAIL – TYPICAL (SEE ES100)



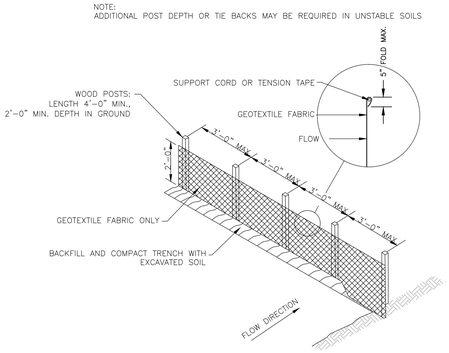
I C108 TYPICAL UNDERDRAIN DETAIL



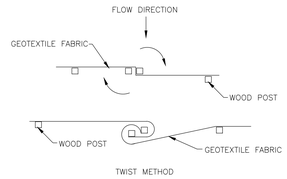
NOTES:
GRADED AREA SHALL BE FREE OF ALL TRASH AND DEBRIS GREATER THAN 3" IN DIAMETER
INSTALL SEED MIX PRIOR TO BLANKET INSTALLATION
APPLY BLANKET TO SLOPE AND STAKE TO MAINTAIN DIRECT CONTACT WITH SOIL, INSTALL STAKES ON MIN. 3' SPACINGS.

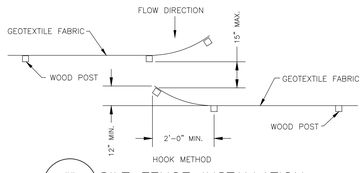
G C108 EROSION CONTROL MAT DETAILS
NO SCALE

K C108 9" CURB AND GUTTER DETAIL
NO SCALE

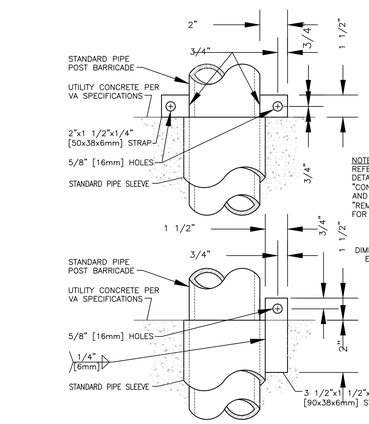


NOTE:
6'–0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE IS USED
ATTACH THE FABRIC TO THE POSTS WITH WIRE STAPLES OR WOODEN LATH AND NAILS





H C108 SILT FENCE INSTALLATION

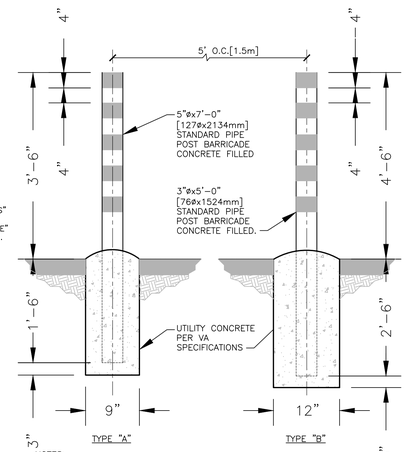


NOTE:
REFER TO VA STANDARD DETAILS 32 05 23–04 "CONCRETE POST BARRICADES" AND 32 05 23–05 "REMOVABLE POST BARRACADE" FOR ADDITIONAL INFORMATION.

REMOVABLE POST BARRICADE STRAP DETAIL
SCALE: NONE

NOTES:
1. REMOVABLE POST BARRICADE SHALL NOT BE CONCRETE FILLED.
2. HAND TIGHTEN BOLT & NUT USING WASHERS EACH SIDE OF STRAPS. CUT BOLT APPROX. 1/8" [6mm] FROM FACE OF NUT & PEEN EXPOSED END OF BOLT.
3. REFER TO VA STANDAD DETAIL 32 02 23–04 "CONCRETE POST BARRICADES" FOR POST DETAILS.

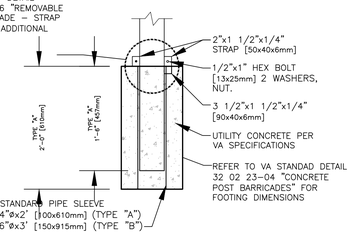
I C108 REMOVEABLE BOLLARD INSTALLATION



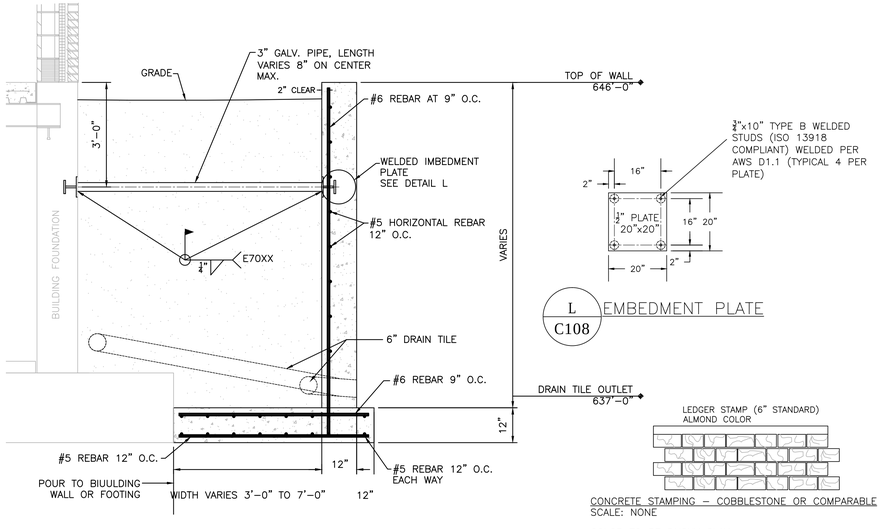
NOTES:
1. POST BARRICADES SHALL BE PAINTED WITH ONE PRIME COAT OF RED OXIDE (PAINT NO.1). ONE FINISH COAT OF DULL BLACK ENAMEL PER VA SPECIFICATIONS AND STRIPES CONSISTING OF 4" [102mm] BANDS OF YELLOW REFLECTORIZED TAPE SHALL BE USED UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2. FINISH COLOR COMBINATIONS, OTHER THAN THAT SPECIFIED ABOVE, SHALL BE SUBMITTED TO THE AGENCY FOR APPROVAL.

CONCRETE POST BARRICADE DETAIL
SCALE: NONE

VA STANDARD DETAIL 32 05 23–06 "REMOVABLE POST BARRICADE – STRAP DETAIL" FOR ADDITIONAL INFORMATION



REMOVABLE POST BARRICADE DETAIL
SCALE: NONE



J C108 TYPICAL RETAINING WALL DETAILS

L C108 EMBEDMENT PLATE

CONCRETE STAMPING – COBBLESTONE OR COMPARABLE
SCALE: NONE

COLOR TO BE DUSKY CLAY
VERIFY AND COORDINATE WITH VA RESIDENT ENGINEER

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

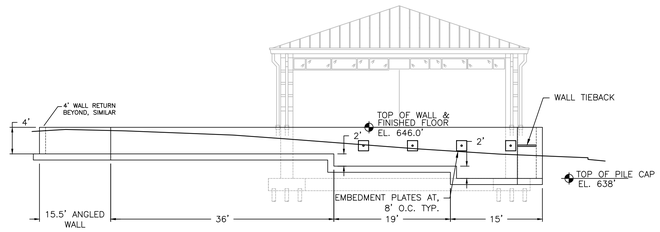
CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2002-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6003
MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

CONSTRUCTION DOCUMENTS

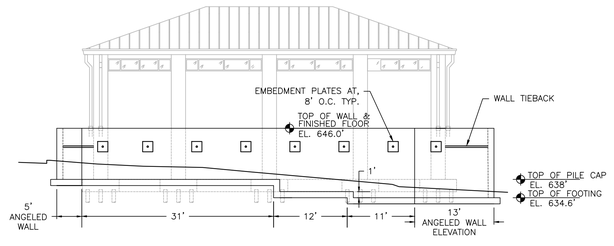
Drawing Title	Details
Project Title	Replace Electrical Sub-Station
Project Number	695-12-118
Building Number	115
Approved: Project Director	
Location	VA Medical Center,Milwaukee, WI
Drawing Number	C108
Date	30 July 2012
Checked By:	DJC
Drawn By:	MAB

Office of Facilities Management
Department of Veterans Affairs

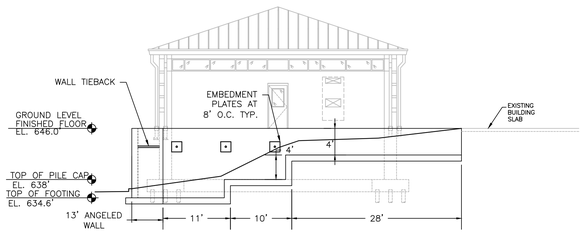
VA FORM 08–6231, OCT 1978



1 EAST WALL ELEVATION
SCALE 1" = 10'



1 NORTH WALL ELEVATION
SCALE 1" = 10'



2 WEST WALL ELEVATION
SCALE 1" = 10'

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2002-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6020
MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

Drawing Title: Retaining Wall Elevations
Approved: Project Director
Project Title: Replace Electrical Sub-Station
Location: VA Medical Center,Milwaukee, WI
Date: 30 July 2012
Checked By: BPH
Drawn By: NLB
Project Number: 695-12-118
Building Number: 115
Drawing Number: C109

CONSTRUCTION DOCUMENTS

Office of Facilities Management

Department of Veterans Affairs

VA FORM 08-6231, OCT 1978

three inches = one foot 6"

one and one half inches = one foot 1 0 6"

one inch = one foot 0 6"

three quarters inch = one foot 2 0 6"

one half inch = one foot 4 0

three eighths inch = one foot 4

one quarter inch = one foot 8 4 0

one eighth inch = one foot 16 8 4 0

ARCHITECTURAL ABBREVIATIONS

A	AIR (MEDICAL)
AAP	AREA ALARM PANEL
AC	ACOUSTICAL CEILING
ADA	AMERICANS WITH DISABILITIES ACT
ADH	ADHESIVE
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
ALUM	ALUMINUM
ANOD	ANODIZED
ATTD	ATTACHED
B	BASE
BC	BABY CHANGING STATION
BRG	BEARING
BSMT	BASEMENT
BTWN	BETWEEN
C	CARPET
CAB	CABINET
CB	CATCH BASIN
CBD	CHALK BOARD
CC	CUBICLE CURTAIN
CCT	CUBICLE CURTAIN TRACK
CG	CORNER GUARD
CHR	CHAIR RAIL
CJ	CONTROL JOINT
CK	CORK
CL	CENTER LINE
CLG	CEILING
CLOS	CLOSET
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
COMM	COMMUNICATION
CONC	CONCRETE
CONF	CONFERENCE
CONT	CONTINUOUS
CONTR	CONTRACTOR
CORR	CORRIDOR
CMPT	COMPARTMENT
CR	CARD READER
CS	COMPUTER STATION
CT	CERAMIC TILE
CTR	CENTER OR COUNTER
CTSK	COUNTERSUNK
CUB	CUBICLE
CUH	CABINET UNIT HEATER
CURT	CURTAIN
DBL	DOUBLE
DET	DETAIL
DF	DRINKING FOUNTAIN
DFT	DRY FILM THICKNESS
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DN	DOWN
DP	DEPTH OR DEEP
DR	DOOR
DWG	DRAWING
DWL	DOWEL
EA	EACH
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EP	ELECTRICAL PANEL
EQ	EQUAL
EQUIP	EQUIPMENT
ETR	EXISTING TO REMAIN
EW	EYE WASH
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WALL HEATER
EXP	EXPOSED
EXT	EXTERIOR
EXTG	EXISTING
F	FILLER
FAB	FABRIC
FB	FACE BRICK
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER –(BRACKET MTD.)
FESR	FIRE EXTINGUISHER IN (SEMIRECESSED CAB.)
FES	FIRE EXTINGUISHER IN (SURFACE MTD. CAB.)
FF	FACTORY FINISH
FG	FIRE RATED SAFETY GLASS
FHC	FIRE HOSE CABINET
FIN	FINISH(ED)
FL	FLUSH
FLR	FLOOR
FLRG	FLOORING
FLSHG	FLASHING
FM	FLOOR MAT
FND	FOUNDATION
FR	FRAME
FRP	FIBERGLASS REINFORCED PLASTIC
FRT	FIRE RETARDANT TREATED
FTG	FOOTING
FV	FILM VIEWER
GA	GAUGE
GALV	GALVANIZED
GB	GRAB BAR
GR	GROUT
GYP	GYPSUM
GX	GLOVE BOX
H	HEIGHT (HIGH)
H&C	HANDRAIL AND CRASHRAIL
HB	HOSE BIBB
HD	HAIR DRYER, HAND DRYER, HEAD OR HARD
HDWR	HARDWARE
HORIZ	HORIZONTAL
HPC	HIGH PERFORMANCE COATING
HR	HOUR
HSS	HOLLOW STRUCTURAL SECTION
HVAC	HEATING, VENTILATING, AIR CONDITIONING
IBC	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IG	INSULATING GLASS
INSUL	INSULATION
INT	INTERIOR
IRWC	IMPACT RESISTANT WALL COVERING
JAN	JANITOR
JT	JOINT
KD	KNOCKED–DOWN
KO	KNOCK(ED)–OUT
KS	KNEE SPACE
KT	KEYBOARD TRAY
LAB	LABORATORY
LAM	LAMINATE(D)
LAV	LAVATORY
LG	LONG, LAMINATED GLASS
LIN	LINOLEUM
LKR	LOCKER
LL	LEAD LINED
LSJ	LONG SPAN JOIST
LT	LIGHT
MAS	MASONRY
MAX	MAXIMUM
MECH	MECHANICAL
MFR	MANUFACTURER
MG	MONOLITHIC FLOAT GLASS
MK	MARKER BOARD
MICRO	MICROWAVE
MIN	MINIMUM, MINUTE
MISC	MISCELLANEOUS
MLAM	METAL LAMINATE
MJT	MOVEMENT JOINT
MO	MASONRY OPENING
MTD	MOUNTED
MTL	METAL
NA	NOT APPLICABLE
NC	NURSE CALL STATION
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
O	OXYGEN
OC	ON CENTER
OD	OUTSIDE DIAMETER / OVERFLOW DRAIN
OPNG	OPENING
OPP	OPPOSITE
PA	PAINT
PAD	PAINT, DRYFALL
PAE	PAINT WITH EGGSHELL FINISH
PAF	PAINT WITH FLAT FINISH
PART	PARTITION
PAS	PAINT WITH SEMI–GLOSS FINISH
PASS	PASSAGE
PAT	PAINT WITH SATIN FINISH
PAX	PAINT, EPOXY
PBD	PARTICLE BOARD
PC	PRE–CAST
PE	POURED EPOXY
PERP	PERPENDICULAR
PG	PATTERNED GLASS
PL	PLATE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLBG	PLUMBING
PLYWD	PLYWOOD
PP	PUSH PLATE (BARRIER FREE DOOR ACTIVATOR)
PPT	PARAPET
PROJ	CEILING MOUNTED PROJECTOR
PS	PROJECTION SCREEN
PSF	POUNDS PER SQUARE FOOT
PT	PRESERVATIVE TREATED OR PORCELAIN TILE
PTD	PAPER TOWEL DISPENSER
PTS	PNEUMATIC TUBE STATION
PTM	PATCH TO MATCH
R	RISER/RADIUS
RB	RESILIENT BASE
RBR	RUBBER, RUBBER FLOORING
RD	ROOF DRAIN
RCP	REFLECTED CEILING PLAN
REF	REFRIGERATOR
REINF	REINFORCED
REQD	REQUIRED
REV	REVISION
RF	RESILIENT FLOORING
RFG	ROOFING
RM	ROOM
RO	ROUGH OPENING
RST	RESILIENT STAIR TREAD
RT	RESILIENT TILE
S	SWITCH
SB	SMART BOARD
SC	SHARPS CONTAINER, SPECIAL COATING
SCHD	SCHEDULE
SCONC	SEALED CONCRETE
SD	SOAP DISPENSER
SG	SPANDREL GLASS
SGT	STRUCTURAL GLAZED TILE
SHT	SHEET
SIM	SIMILAR
SL	SLATE
SLD	SOLID SURFACE
SM	SHEET METAL
SND/D	SANITARY NAPKIN DISPENSER/DISPOSAL UNIT
SPG	SPECIALTY GLASS
SQ	SQUARE
SS	STAINLESS STEEL
SSM	SOLID SURFACING MATERIAL
ST	STONE
STC	STORAGE CABINET
STD	STANDARD
STL	STEEL
STN	STAIN
STOR	STORAGE
STRUCT	STRUCTURE OR STRUCTURAL
SUSP	SUSPENDED
SV	SHEET VINYL
T	TREAD
T/	TOP OF
T & G	TONGUE AND GROOVE
TEL	TELEPHONE
TEMP	TEMPERED OR TEMPORARY
TH	THICK(NESS)
TK	TACK BOARD
TLT	TOILET
TOB	TOP OF BEAM
TOD	TOP OF DECK
TOF	TOP OF FOOTING
TOM	TOP OF MASONRY
TOS	TOP OF SLAB OR TOP OF STEEL
TOW	TOP OF WALL
TP	TOILET PARTITION
TPG	TOPPING
TPH	TOILET PAPER HOLDER
TS	TUBING, STRUCTURAL OR TRANSITION STRIP
TV	TELEVISION OR TV OUTLET
TWC	TACKABLE WALL COVERING
TYP	TYPICAL
UC	UNDERCOUNTER OR CABINET
UCD	UNDERCUT DOOR
UCL	UNDERCABINET LIGHT
UH	UNIT HEATER
UNEXC	UNEXCAVATED
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
V	VINYL
VAC	VACUUM
VAR	VARIES
VB	VALVE BOX
VCT	VINYL COMPOSITION TILE
VENT	VENTILATOR
VERT	VERTICAL
VIF	VERIFY IN FIELD
VT	VINYL TILE
W	WIDTH OR WIDE
W/	WITH
W/O	WITHOUT
WC	WALL COVERING
WD	WOOD
WDW	WINDOW
WDWK	WOOD WORK
WF	WIDE FLANGE
WLHG	WALLHUNG
WRC	WARDROBE CABINET
WSCT	WAINSCOT
WWF	WELDED WIRE FABRIC
WWR	WELDED WIRE REINFORCEMENT

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

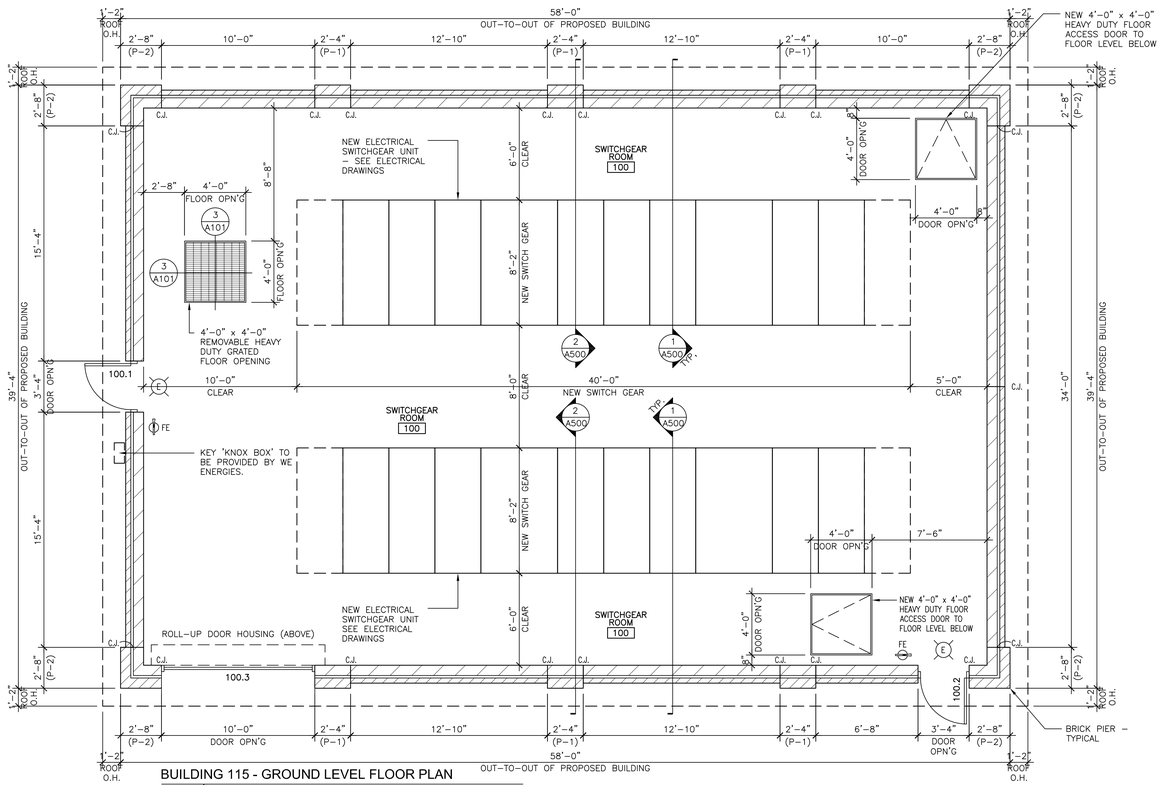
CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2002-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

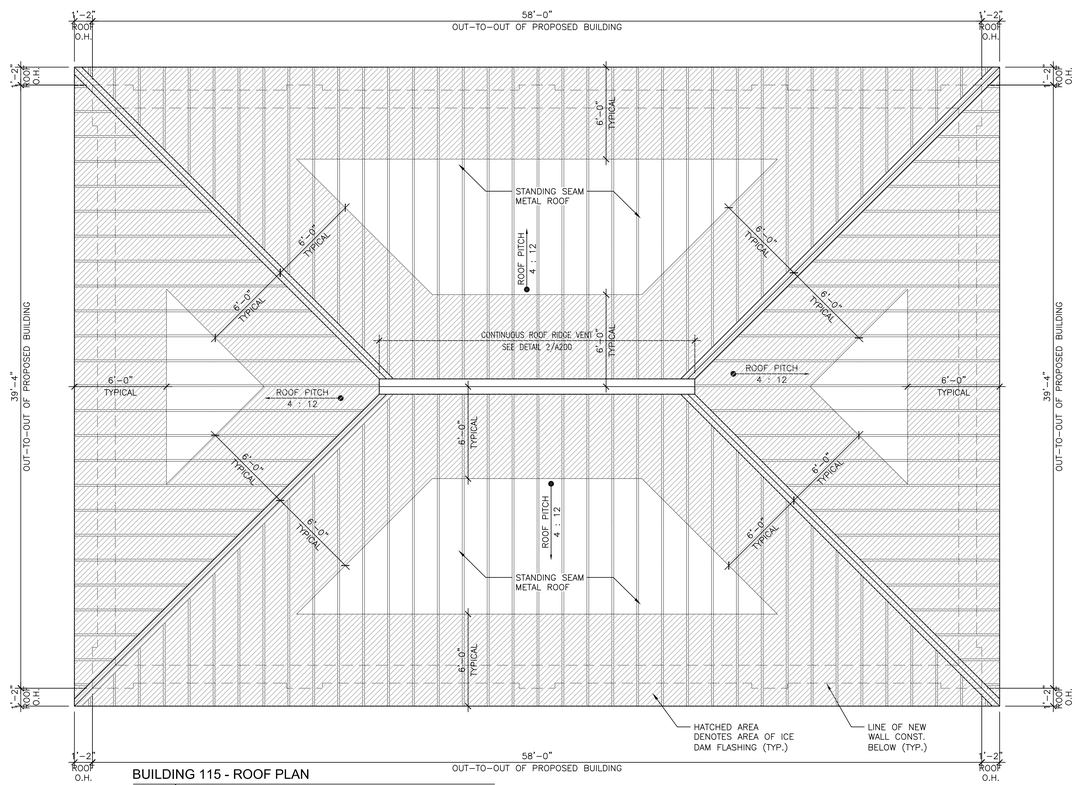
CONSTRUCTION DOCUMENTS

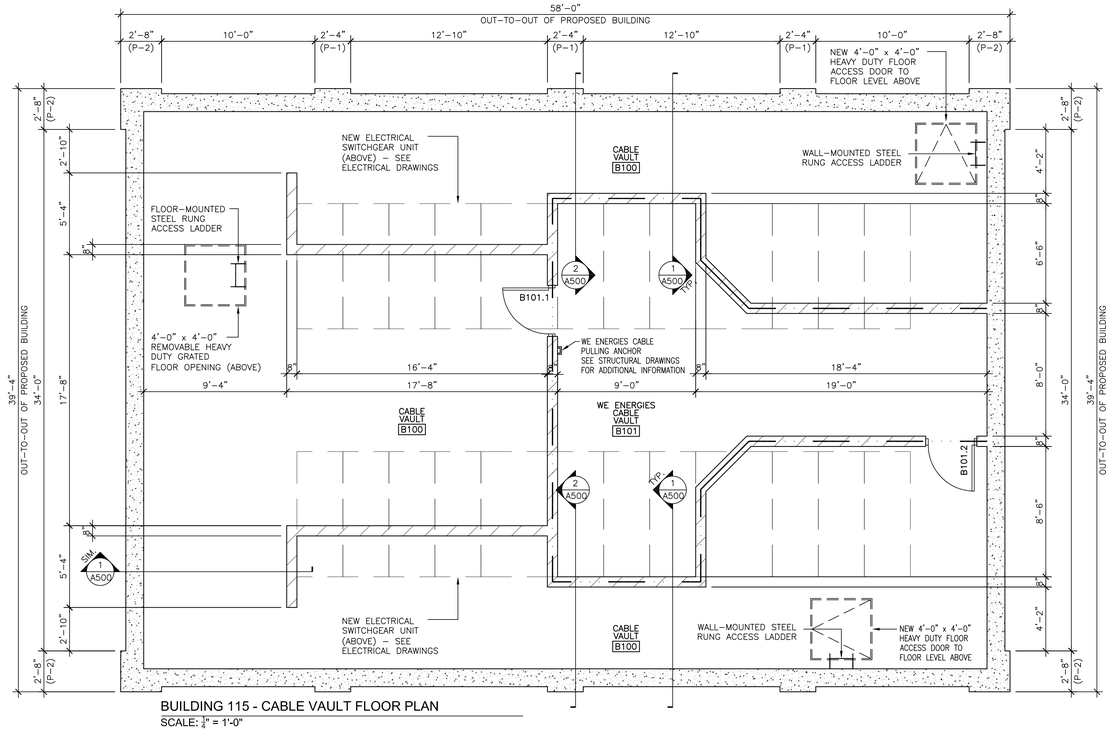
Drawing Title: Building 115 - Architectural Abbreviations
Project Title: Replace Electrical Sub-Station
Project Number: 695-12-118
Building Number: 115
Approved: Project Director
Location: VA Medical Center,Milwaukee, WI
Drawing Number: A000
Date: 30 July 2012
Checked By: MAC
Drawn By: KJS

Office of Facilities Management
Department of Veterans Affairs

VA FORM 08–6231, OCT 1978







GENERAL PLAN NOTES:

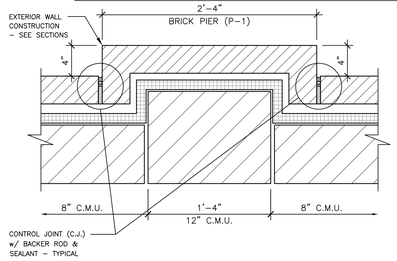
- SEE SPECIFICATIONS FOR MATERIALS SPECIFICATIONS & REQUIREMENTS.
- SEE SPECIFICATIONS FOR ALL NEW FINISHES, DOOR HARDWARE, ETC...
- ALL NEW C.M.U. WALLS ARE DIMENSIONED FACE-OF-C.M.U. TO FACE-OF-C.M.U.
- ALL C.M.U. WALLS TO EXTEND TO UNDERSIDE OF FLOOR OR ROOF STRUCTURE UNLESS NOTED OTHERWISE.
- ALL NEW CONCRETE FLOOR SLABS TO RECEIVE A HARD COAT EPOXY FLOOR SEALANT.
- PROVIDE WOOD BLOCKING AS REQUIRED FOR ALL FURNISHINGS & EQUIPMENT.
- SEE SHEET A200 FOR NEW EXTERIOR BUILDING ELEVATIONS.
- SEE SHEET A500 FOR NEW EXTERIOR BUILDING SECTIONS & ENLARGED DETAILS.
- SEE SHEET A800 FOR NEW DOOR SCHEDULE, NEW DOOR & FRAME TYPES, & NEW ALUMINUM WINDOW ELEVATIONS.

FLOOR PLAN LEGEND:

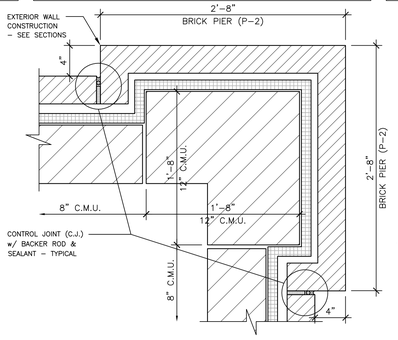
- FE — FIRE EXTINGUISHER
- E — EMERGENCY EXIT LIGHT
- NEW DOOR - SEE DOOR SCHEDULE
- NEW FULL HEIGHT C.M.U. WALL
- NEW EXTERIOR WALL - SEE SECTIONS
- NEW CONCRETE FOUNDATION WALL - SEE SECTIONS
- * NOTE - SEE FLOOR PLAN & PARTITION TYPES FOR ALL WALL WIDTHS & TYPICAL CONSTRUCTION.
- 3-HOUR FIRE RATED PARTITION

ROOF PLAN NOTES:

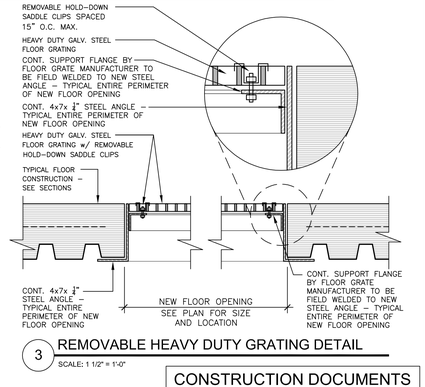
- SEE SECTIONS ON SHEET A500 FOR TYPICAL ROOF CONSTRUCTION & ASSOCIATED ROOF DETAILS.
- ALL ROOFING AND ASSOCIATED TRIM & ACCESSORIES, TO BE INSTALLED PER MANUFACTURER'S DETAILS & REQUIREMENTS. PROVIDE ALL MATERIALS & ACCESSORIES REQUIRED TO PROVIDE A COMPLETE AND WATERTIGHT SYSTEM.
- PROVIDE AND INSTALL ROOF FLASHING FOR ALL ROOF PENETRATIONS. INSTALL PER MANUFACTURE'S DETAILS & REQUIREMENTS.
- PROVIDE & INSTALL MIN. 6" ICE DAM FLASHING AT ALL ROOF EAVES, VALLEYS, & INTERSECTIONS. INSTALL PER MANUFACTURER'S DETAILS & REQUIREMENTS,
- SEE MECHANICAL DRAWINGS FOR LOCATION & SIZE OF ALL ROOF PENETRATIONS.
- SEE MECHANICAL DRAWINGS FOR SIZE & LOCATION OF ALL REQUIRED EQUIPMENT CURBS.
- PAINTING CONTRACTOR TO PAINT ALL EXPOSED ROOFING PENETRATIONS - ROOF PENETRATIONS TO INCLUDE ALL EXPOSED DUCTWORK, HVAC ROOFTOP UNITS, EXHAUST HOODS, VENTS, ETC.



1 TYPICAL PIER DETAIL (P-1)
SCALE: 1 1/2" = 1'-0"



2 TYPICAL CORNER PIER DETAIL (P-2)
SCALE: 1 1/2" = 1'-0"



3 REMOVABLE HEAVY DUTY GRATING DETAIL
SCALE: 1 1/2" = 1'-0"

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP — Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2003-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI, 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI, 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

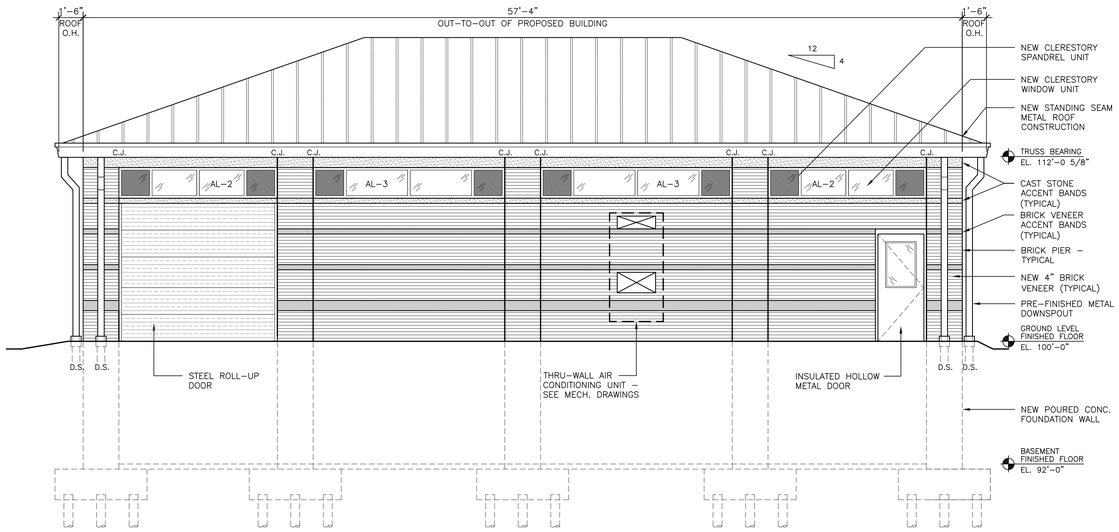
Drawing Title: Building 115 - New Construction Floor & Roof Plans	Project Title: Replace Electrical Sub-Station
Approved: Project Director	Location: VA Medical Center,Milwaukee, WI
	Date: 30 July 2012 — Checked By: MAC — Drawn By: KJS
	Project Number: 695-12-118
	Building Number: 115
	Drawing Number: A101

CONSTRUCTION DOCUMENTS

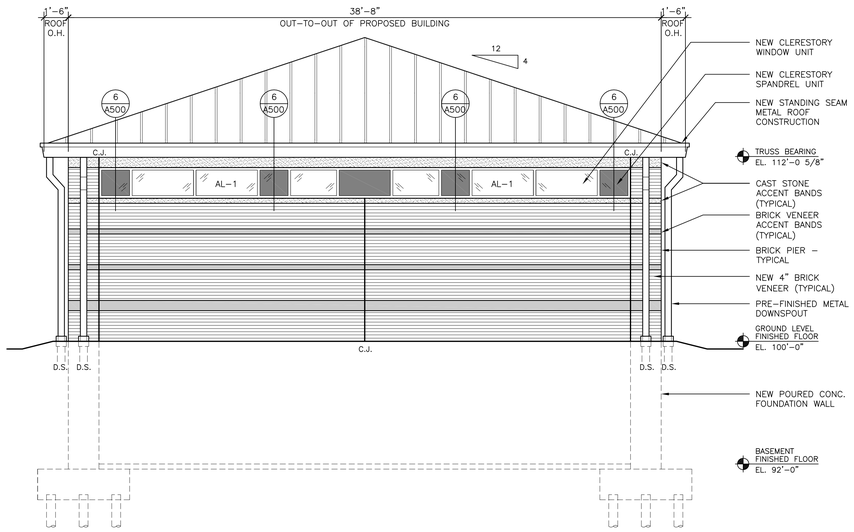
Office of Facilities Management

Department of Veterans Affairs

VA FORM 08-6231, OCT 1978



BUILDING 115 -
PROPOSED SOUTH ELEVATION
SCALE: $\frac{1}{4}$" = 1'-0"



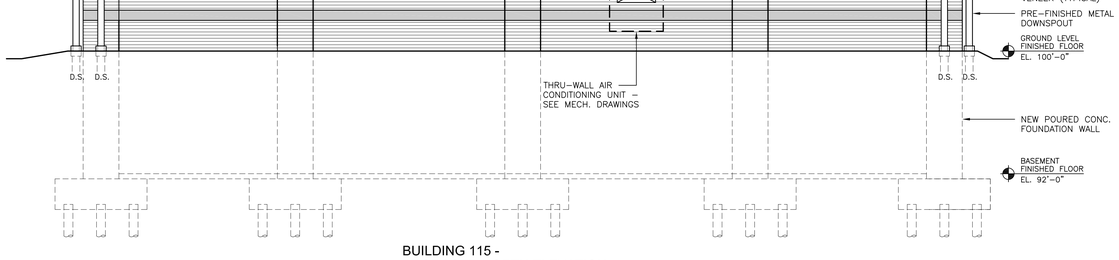
BUILDING 115 -
PROPOSED EAST ELEVATION
SCALE: $\frac{1}{4}$" = 1'-0"

GENERAL ELEVATION NOTES:

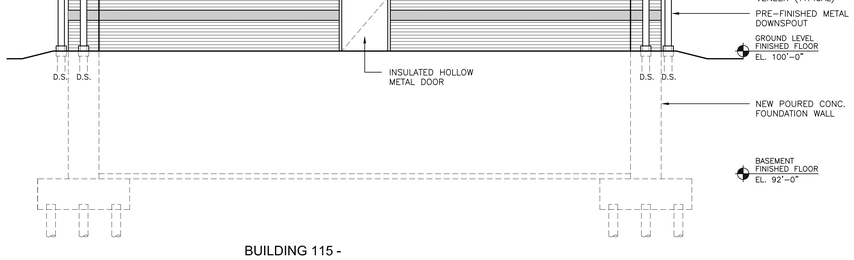
- GENERAL CONTRACTOR RESPONSIBLE FOR THE COORDINATION OF ALL WORK.
- SEE SPECIFICATIONS FOR SCHEDULED FINISHES FOR ALL NEW WALL, ROOF, & WINDOW FRAMING FINISHES, GLAZING TYPES, ETC...
- ALL MEP ROOF PENETRATIONS SHALL BE PAINTED BY THE GENERAL CONTRACTOR TO MATCH COLOR ADJACENT ROOF SURFACE. SEE MEP DRAWINGS FOR LOCATIONS.
- ALL MECHANICAL LOUVERS SHALL BE PAINTED BY THE GENERAL CONTRACTOR TO MATCH THE COLOR & FINISH OF ADJACENT WINDOW/DOOR FRAMING. SEE MEP DRAWINGS FOR LOCATIONS.
- SEE SHEET A800 FOR NEW DOOR SCHEDULE, NEW DOOR & FRAME TYPES, & NEW ALUMINUM WINDOW ELEVATIONS.

ELEVATION FINISHES LEGEND:

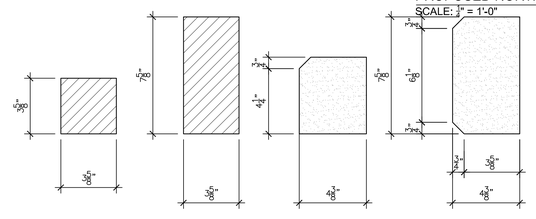
	NEW MASONRY BRICK VENEER
	NEW CAST STONE BRICK ACCENT BANDS
	CLEAR INSULATED VISION GLASS
	INSULATED SPANDREL GLASS
D.S.	PREFINISHED METAL DOWNSPOUT
C.J.	BRICK MASONRY CONTROL JOINT



BUILDING 115 -
PROPOSED NORTH ELEVATION
SCALE: $\frac{1}{4}$" = 1'-0"



BUILDING 115 -
PROPOSED WEST ELEVATION
SCALE: $\frac{1}{4}$" = 1'-0"

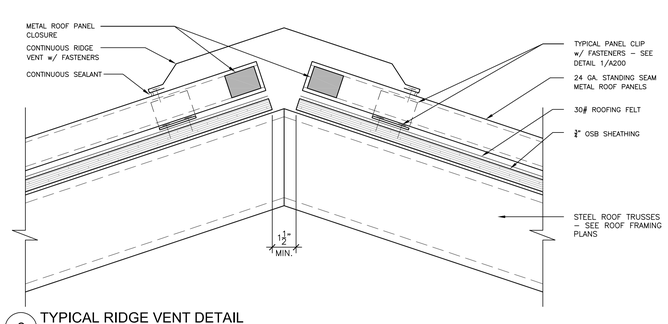


BASE OF DESIGN:
MANUFACTURER: BELDEN BRICK COMPANY
PRODUCT: 4" UTILITY BRICK
COLOR/FINISH NO: CREAM (418-483 MATTE)

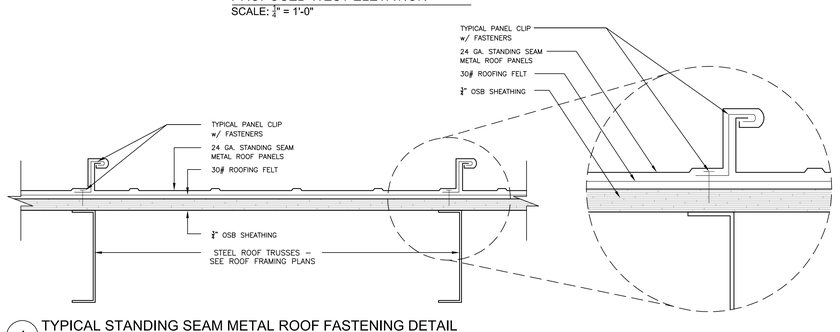
BASE OF DESIGN:
MANUFACTURER: CONTINENTAL CAST STONE OR EQUAL
COLOR/FINISH NO: 1102 NATURAL STONE

4 BRICK VENEER ACCENT BANDS
SCALE: 3" = 1'-0"

3 CAST STONE PROFILES
SCALE: 3" = 1'-0"



2 TYPICAL RIDGE VENT DETAIL
SCALE: 3" = 1'-0"



1 TYPICAL STANDING SEAM METAL ROOF FASTENING DETAIL
SCALE: 3" = 1'-0"

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP
Single Source. Sound Solutions.
www.theslgmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2003-2012

ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025

MILWAUKEE, WI
933 N. MAYFAIR RD.,
SUITE 109
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-5154

Drawing Title: Building 115 - Exterior Building Elevations
Approved: Project Director
Project Title: Replace Electrical Sub-Station
Location: VA Medical Center,Milwaukee, WI
Date: 30 July 2012
Checked By: MAC
Drawn By: KJS
Project Number: 695-12-118
Building Number: 115
Drawing Number: A200

CONSTRUCTION DOCUMENTS

Office of Facilities Management
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978

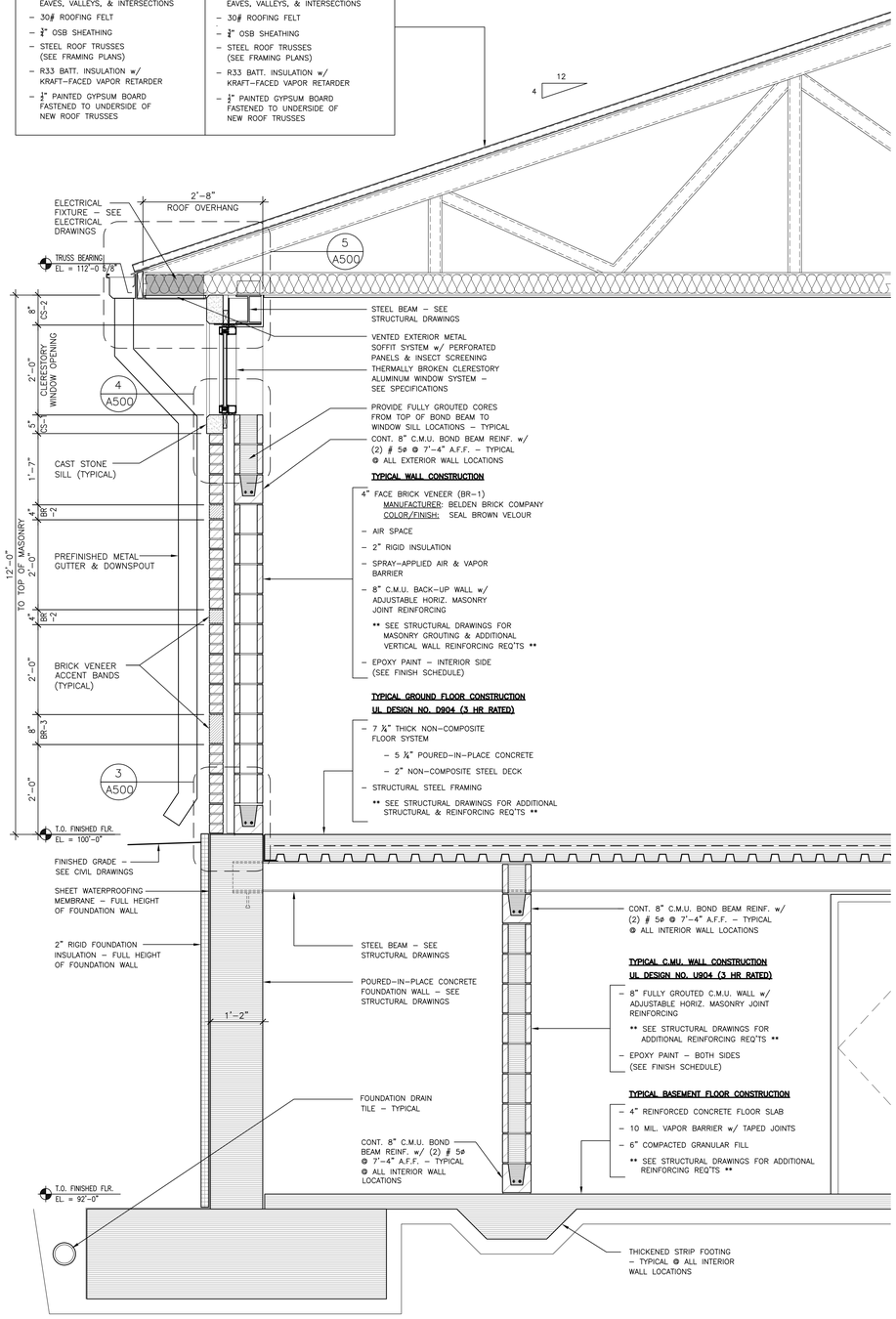
TYPICAL ROOF CONSTRUCTION

BASE BID:

- NEW 24 GA. STANDING SEAM METAL ROOF PANELS w/ ALL REQ'D TRIM, FLASHINGS, & ACCESSORIES
- MIN. 6' ICE DAM FLASHING AT ALL ROOF EAVES, VALLEYS, & INTERSECTIONS
- 30# ROOFING FELT
- ¾" OSB SHEATHING
- STEEL ROOF TRUSSES (SEE FRAMING PLANS)
- R33 BATT. INSULATION w/ KRAFT-FACED VAPOR RETARDER
- ½" PAINTED GYPSUM BOARD FASTENED TO UNDERSIDE OF NEW ROOF TRUSSES

ALTERNATE BID:

- NEW ASPHALT SHINGLES W/ ALL REQ'D TRIM, FLASHINGS, & ACCESSORIES (SEE SPECIFICATIONS)
- MIN. 6' ICE DAM FLASHING AT ALL ROOF EAVES, VALLEYS, & INTERSECTIONS
- 30# ROOFING FELT
- ¾" OSB SHEATHING
- STEEL ROOF TRUSSES (SEE FRAMING PLANS)
- R33 BATT. INSULATION w/ KRAFT-FACED VAPOR RETARDER
- ½" PAINTED GYPSUM BOARD FASTENED TO UNDERSIDE OF NEW ROOF TRUSSES



TYPICAL WALL CONSTRUCTION

- 4" FACE BRICK VENEER (BR-1)
  MANUFACTURER: BELDEN BRICK COMPANY
  COLOR/FINISH: SEAL BROWN VELOUR
- AIR SPACE
- 2" RIGID INSULATION
- SPRAY-APPLIED AIR & VAPOR BARRIER
- 8" C.M.U. BACK-UP WALL w/ ADJUSTABLE HORIZ. MASONRY JOINT REINFORCING
  ** SEE STRUCTURAL DRAWINGS FOR MASONRY GROUTING & ADDITIONAL VERTICAL WALL REINFORCING REQ'TS **
- EPOXY PAINT – INTERIOR SIDE (SEE FINISH SCHEDULE)

TYPICAL GROUND FLOOR CONSTRUCTION
UL DESIGN NO. D904 (3 HR RATED)

- 7 ¼" THICK NON-COMPOSITE FLOOR SYSTEM
  - 5 ¼" POURED-IN-PLACE CONCRETE
  - 2" NON-COMPOSITE STEEL DECK
- STRUCTURAL STEEL FRAMING
  ** SEE STRUCTURAL DRAWINGS FOR ADDITIONAL STRUCTURAL & REINFORCING REQ'TS **

TYPICAL C.M.U. WALL CONSTRUCTION
UL DESIGN NO. U904 (3 HR RATED)

- 8" FULLY GROUTED C.M.U. WALL w/ ADJUSTABLE HORIZ. MASONRY JOINT REINFORCING
  ** SEE STRUCTURAL DRAWINGS FOR ADDITIONAL REINFORCING REQ'TS **
- EPOXY PAINT – BOTH SIDES (SEE FINISH SCHEDULE)

TYPICAL BASEMENT FLOOR CONSTRUCTION

- 4" REINFORCED CONCRETE FLOOR SLAB
- 10 MIL. VAPOR BARRIER w/ TAPED JOINTS
- 6" COMPACTED GRANULAR FILL
  ** SEE STRUCTURAL DRAWINGS FOR ADDITIONAL REINFORCING REQ'TS **

1 TYPICAL EXTERIOR WALL SECTION

SCALE: 3/4" = 1'-0"

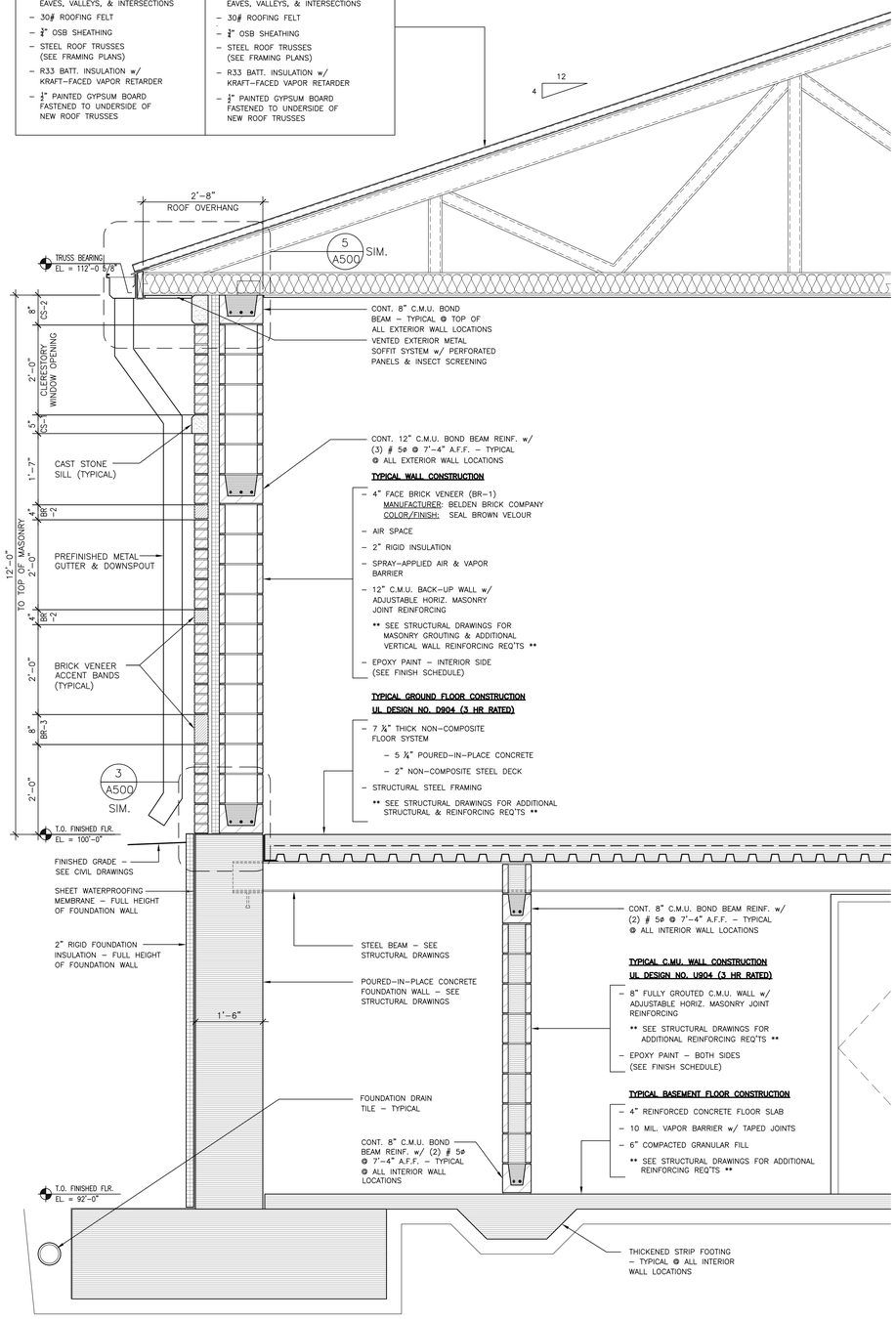
TYPICAL ROOF CONSTRUCTION

BASE BID:

- NEW 24 GA. STANDING SEAM METAL ROOF PANELS w/ ALL REQ'D TRIM, FLASHINGS, & ACCESSORIES
- MIN. 6' ICE DAM FLASHING AT ALL ROOF EAVES, VALLEYS, & INTERSECTIONS
- 30# ROOFING FELT
- ¾" OSB SHEATHING
- STEEL ROOF TRUSSES (SEE FRAMING PLANS)
- R33 BATT. INSULATION w/ KRAFT-FACED VAPOR RETARDER
- ½" PAINTED GYPSUM BOARD FASTENED TO UNDERSIDE OF NEW ROOF TRUSSES

ALTERNATE BID:

- NEW ASPHALT SHINGLES W/ ALL REQ'D TRIM, FLASHINGS, & ACCESSORIES (SEE SPECIFICATIONS)
- MIN. 6' ICE DAM FLASHING AT ALL ROOF EAVES, VALLEYS, & INTERSECTIONS
- 30# ROOFING FELT
- ¾" OSB SHEATHING
- STEEL ROOF TRUSSES (SEE FRAMING PLANS)
- R33 BATT. INSULATION w/ KRAFT-FACED VAPOR RETARDER
- ½" PAINTED GYPSUM BOARD FASTENED TO UNDERSIDE OF NEW ROOF TRUSSES



TYPICAL WALL CONSTRUCTION

- 4" FACE BRICK VENEER (BR-1)
  MANUFACTURER: BELDEN BRICK COMPANY
  COLOR/FINISH: SEAL BROWN VELOUR
- AIR SPACE
- 2" RIGID INSULATION
- SPRAY-APPLIED AIR & VAPOR BARRIER
- 12" C.M.U. BACK-UP WALL w/ ADJUSTABLE HORIZ. MASONRY JOINT REINFORCING
  ** SEE STRUCTURAL DRAWINGS FOR MASONRY GROUTING & ADDITIONAL VERTICAL WALL REINFORCING REQ'TS **
- EPOXY PAINT – INTERIOR SIDE (SEE FINISH SCHEDULE)

TYPICAL GROUND FLOOR CONSTRUCTION
UL DESIGN NO. D904 (3 HR RATED)

- 7 ¼" THICK NON-COMPOSITE FLOOR SYSTEM
  - 5 ¼" POURED-IN-PLACE CONCRETE
  - 2" NON-COMPOSITE STEEL DECK
- STRUCTURAL STEEL FRAMING
  ** SEE STRUCTURAL DRAWINGS FOR ADDITIONAL STRUCTURAL & REINFORCING REQ'TS **

TYPICAL C.M.U. WALL CONSTRUCTION
UL DESIGN NO. U904 (3 HR RATED)

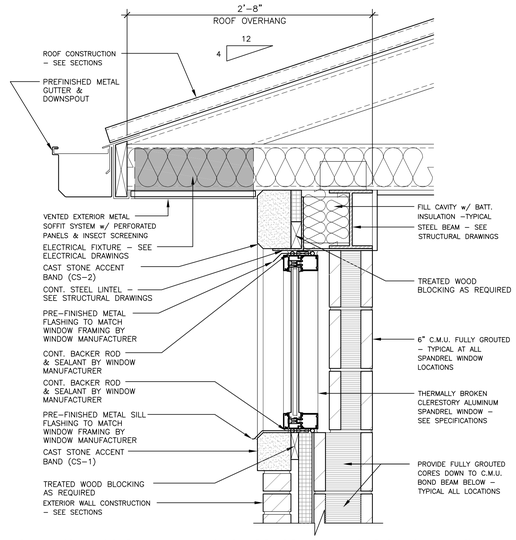
- 8" FULLY GROUTED C.M.U. WALL w/ ADJUSTABLE HORIZ. MASONRY JOINT REINFORCING
  ** SEE STRUCTURAL DRAWINGS FOR ADDITIONAL REINFORCING REQ'TS **
- EPOXY PAINT – BOTH SIDES (SEE FINISH SCHEDULE)

TYPICAL BASEMENT FLOOR CONSTRUCTION

- 4" REINFORCED CONCRETE FLOOR SLAB
- 10 MIL. VAPOR BARRIER w/ TAPED JOINTS
- 6" COMPACTED GRANULAR FILL
  ** SEE STRUCTURAL DRAWINGS FOR ADDITIONAL REINFORCING REQ'TS **

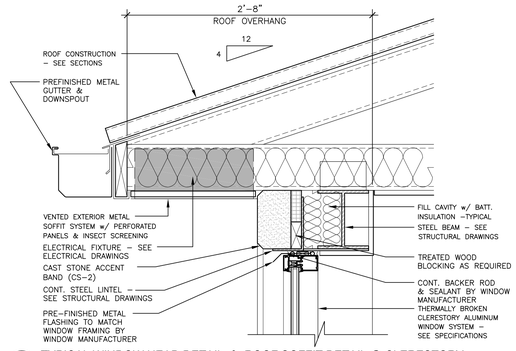
2 TYPICAL EXTERIOR WALL SECTION @ MASONRY PIERS

SCALE: 3/4" = 1'-0"



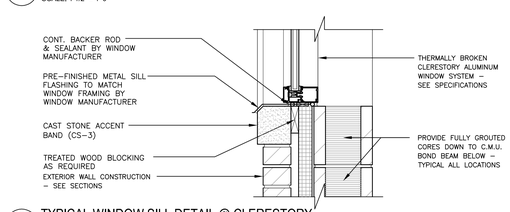
6 TYPICAL WINDOW HEAD DETAIL & ROOF SOFFIT DETAIL @ SPANDREL UNIT

SCALE: 1 1/2" = 1'-0"



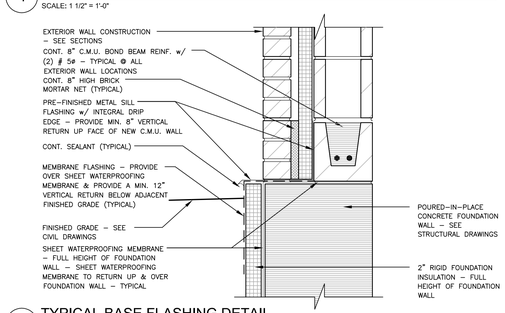
5 TYPICAL WINDOW HEAD DETAIL & ROOF SOFFIT DETAIL @ CLERESTORY

SCALE: 1 1/2" = 1'-0"



4 TYPICAL WINDOW SILL DETAIL @ CLERESTORY

SCALE: 1 1/2" = 1'-0"



3 TYPICAL BASE FLASHING DETAIL

SCALE: 1 1/2" = 1'-0"

CONSTRUCTION DOCUMENTS

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC.
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:
CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2000-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

Drawing Title	Building 115 - Building Sections & Enlarged Details
Approved: Project Director	
Project Title	Replace Electrical Sub-Station
Location	VA Medical Center,Milwaukee, WI
Date	30 July 2012
Checked By:	MAC
Drawn By:	KJS
Project Number	695-12-118
Building Number	115
Drawing Number	A500

Office of Facilities Management
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978

DOOR SCHEDULE

DOOR NO.	ROOM NO.	ROOM NAME	DOOR SIZE WIDTH	DOOR SIZE HEIGHT	DOOR TYPE	DOOR MATERIAL	DOOR FINISH	DOOR GLASS TYPE	FRAME SIZE WIDTH	FRAME SIZE HEIGHT	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	HARDWARE GROUP	ASSEMBLY RATING	DOOR SCHEDULE REMARKS
BASEMENT FLOOR																
B101.1	B101	WE ENERGIES CABLE VAULT	3'-0"	6'-6"	B	STEEL	P-1	-	3'-0"	6'-6"	HM-2	STEEL	P-2	HW-5K	120 MIN.	(2), (3), (5)
B101.2	B101	WE ENERGIES CABLE VAULT	3'-0"	6'-6"	B	STEEL	P-1	-	3'-0"	6'-6"	HM-2	STEEL	P-2	HW-5K	120 MIN.	(2), (3), (5)
GROUND FLOOR																
100.1	100.1	SWITCHGEAR ROOM	3'-0"	7'-0"	A	STEEL	P-1	GL-2	3'-0"	7'-0"	HM-1	STEEL	P-2	HW-E4		(2), (3), (4)
100.2	100.2	SWITCHGEAR ROOM	3'-0"	7'-0"	A	STEEL	P-1	GL-2	3'-0"	7'-0"	HM-1	STEEL	P-2	HW-E4		(2), (3), (4)
100.3	100.3	SWITCHGEAR ROOM	10-0"	9'-0"	C	STEEL	P-1		PER ROLL-UP DOOR MANUFACTURER					HW-E5		(1)

DOOR SCHEDULE REMARKS:

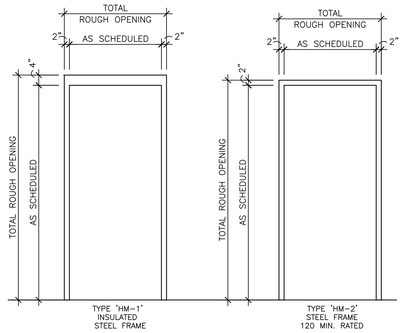
1.) MANUAL OPERATING DOOR HARDWARE TO BE PROVIDED BY DOOR MANUFACTURER.

2.) SEE DIVISION 26 (ELECTRICAL) FOR ALL ELECTRICAL DOOR HARDWARE CONNECTIONS AND REQUIREMENTS.

3.) DOOR TO BE EQUIPPED WITH CARD ACCESS READER. SEE ELECTRICAL DRAWINGS FOR ALL DOOR HARDWARE CONNECTIONS AND REQUIREMENTS.

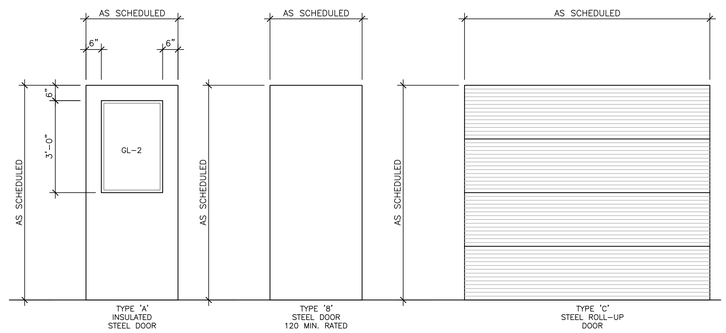
4.) DOOR TO BE PROVIDED w/ EMERGENCY EGRESS AND PANIC HARDWARE. SEE DOOR HARDWARE SPECIFICATIONS.

5.) SCHEDULED DOOR HARDWARE TO BE PROVIDED w/ VON DUPRIN LOCKS (PROD. NO. 99NL-F). LOCKING CYLINDER TO BE PROVIDED BY WE ENERGIES.



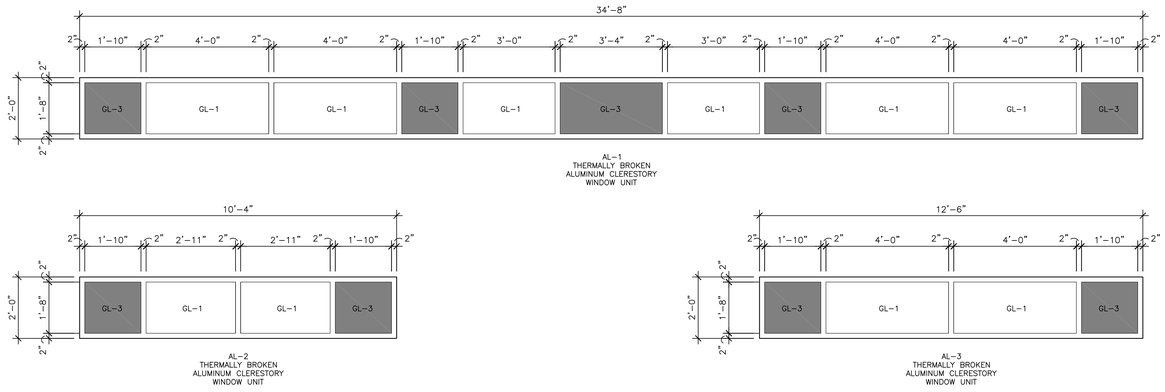
DOOR FRAME TYPES

SCALE: 1/2" = 1'-0"



DOOR TYPES

SCALE: 1/2" = 1'-0"



WINDOW FRAME TYPES

SCALE: 1/2" = 1'-0"

CONSTRUCTION DOCUMENTS

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2002-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI. 53226
PHONE: (414) 259-6004
FAX: (414) 258-6154

Drawing Title: Building 115 - Door Schedule, Door & Frame Types, & Details

Approved: Project Director

Project Title: Replace Electrical Sub-Station

Location: VA Medical Center,Milwaukee, WI

Date: 30 July 2012

Checked By: MAC

Drawn By: KJS

Project Number: 695-12-118

Building Number: 115

Drawing Number: A800

Office of Facilities Management

Department of Veterans Affairs

VA FORM 08-6231, OCT 1978

General Structural Notes

1. Structural drawings should not be scaled. Printed dimensions have precedence over scaled drawings and large scale over small.
2. All drawings and specifications are considered to be a part of the contract documents. Structural drawings shall be used in conjunction with the civil, architectural, mechanical, electrical, and plumbing drawings for location of equipment, openings, floor depressions, curbs, etc. not indicated on the structural drawings. The location and size of mechanical electrical, and plumbing openings, or depressions in slabs, walls and decks shall be coordinated by the contractor. Provide all additional framing or reinforcing to accommodate openings as required by the applicable standard details shown on the structural details or provided by the structural engineer.
3. No holes, notches, etc. are allowed in structural members unless detailed on the structural drawings or approved by the structural engineer.
4. Where dimensions are provided for openings, floor depressions, curbs etc. but may be affected by the equipment purchased, the contractor shall verify the information provided prior to construction.
5. Provide concrete equipment pads at bases for mechanical and electrical installations. Construct pads and bases in accordance with the typical details. See mechanical and electrical drawings for limits and locations.
6. Contractor shall provide and be responsible for the protection and repair of adjacent surfaces and areas which may be damaged by new work.
7. All columns and foundations, unless noted otherwise, shall be centered on gridlines in each direction. Beams shall be equally spaced between column centerlines, unless noted otherwise.
8. Typical details shall apply in general construction unless specifically detailed. Where no details are given, construction shall be as shown for similar work.
9. The contractor shall be responsible for adequate design and construction of all forms shoring, and temporary bracing. The contractor shall provide all measures necessary to protect the structure and safety of workmen during construction.
   a. Do not place construction materials or other construction loads on the structure such that the loads placed exceed the capacity of the structure.
   b. Take into consideration that full structural capacity of many structural members is not realized until structural assembly is complete; that is, until slabs, decks, diagonal bracing, and shear walls are installed.
   c. Provide necessary temporary bracing and guying to provide stability and resist all loads to which the partially completed structure may be subjected, including erection equipment and its operation. Adequacy of temporary bracing and guying for this purpose is the sole responsibility of the contractor.

Structural Design Data

1. Load Combinations are in accordance with section 1605 of the IBC.
2. Occupancy Category: 4
3. Roof Truss Loading:
   a. Roof Live Load = 20 psf
   b. Top Chord Dead Load = 10 psf
   c. Bottom Chord Dead Load = 10 psf
3. Snow Load Information:
   a. Ground Snow Load = 40 psf
   b. Thermal Factor 1.1
4. Design Wind Loading:
   a. Design Wind Speed: 90 mph
   b. Exposure Category: C
5. Foundation Design Information:
   a. Allowable Strip Footing Load = 1800 psf
6. Seismic Design Load Information:
   a. SDS = A
   b. SD1 = A
   c. Site Class D

Materials of Construction

1. Shrinkage compensating concrete	28 Day Compressive Strength
Footings and Foundations	F'c = 4000 psi
Floor slabs, toping	F'c = 4000 psi
Exterior Concrete	F'c = 4000 psi, Air Entrained
2. Reinforcing Steel – ASTM A934 – Grade 60	Fy = 60ksi (Epoxy Coated)
3. Structural Steel	
Wide Flange and Tee shapes – ASTM A992	Fy = 50 ksi
Angles, Channels and Plate – ASTM A36	Fy = 36 ksi
HSS Tubes and Pipes – ASTM A 500	Fy = 42 ksi
Bolts	A325 Unless Noted Otherwise
Anchor Bolts – ASTM F 1554 Grade 36	Fy = 36 ksi
Welding electrodes – E70XX	
Composite Metal Form Deck (Galvanized) ASTM A653 G60 Zinc coating	Fy = 40ksi, Structural Quality
4. Non-shrink Grout and Non-metallic Grout at base plates and bearing plats	F'c = 4000 psi at 7 Days

Expansion Anchors

1. Expansion anchors shall be a single-end expansion shield anchor which complies with the descriptive part of federal specification A-A 1923A, Type 4, for wedge anchors. Wedge anchors shall be Hilti Kwik bolt. Shell anchors shall be Hilti HIDI. Anchors shall be by Hilti Fastening Systems of Tulsa, OK (ICC ES Reports ESR-1917 for wedge anchors and ESR 2895 for shell anchors) or equal.
2. Anchors shall be zinc plated unless specifically noted as stainless steel on the plan details.
3. When details of sections indicate expansion anchors but no size, provide anchors with ¾" diameter.
4. Provide the following embedment depths unless noted otherwise.

Anchor Diameter	Embedment Depth
3/8"	2 1/2"
1/2"	3 1/2"
5/8"	4"
3/4"	4 3/4"

5. When installing drilled-in-anchors, use care and caution to avoid cutting or damaging the existing reinforcing bars.

Powder Actuated Fasteners

1. All powder actuated fasteners shall be approved for type, application and installation and shall have an approved ICBO research report number.
2. Fasteners shall not be installed until the concrete has reached its design strength.
3. Fasteners shall not be installed in concrete where the thickness is less than three times the penetration required, except 1 1/8" penetration in 3 ¼" thick floor slab is acceptable.
4. The minimum distance from the edge of concrete to center of anchor is 3 inches.
5. Fasteners in the underside of concrete on metal decking shall be placed in the high flute portion of the slab.
6. When installing powder actuated driven pins in existing non-prestressed reinforced concrete, use care and caution to avoid cutting or damaging the existing reinforcing bars.

Structural Steel

1. Steel framing designations and symbols are defined in the structural steel symbol legend.
2. All field bolted shear connections shall be made with minimum ¾" diameter A325 Bolts, unless noted otherwise. All bolts shall be fully pre-tensioned and inspected using tension control twist-off style bolts, or DTI Washers. Unless specifically indicated as snug tight, all joints shall be designated as pre-tensioned. Routine observation to verify the splined ends are properly severed during installation is required for all bolts.
3. Place non-shrink grout under all column base plates before placing any elevated slabs.
4. Where the work of other trades requires cuts or openings to be made in the structural steel members, approval shall be obtained from the engineer. Such openings shall be made in the shop and clearly indicated on the shop drawing.
5. E70XX electrodes shall be used for all welding. Properly qualified welders shall perform all welding, as prescribed under "standard qualification procedure" of the American Welding Society.
6. Weld lengths called for on the plans are the net effective length required. Where fillet weld symbol is given without indication of size, use minimum size welds as specified by AISC or 3/16" whichever is greater.
7. All grove welds indicated on plans and sections shall be complete joint penetration welds (CJP) unless specifically indicated to be partial penetration welds.

Concrete and Reinforcing

1. Location of Construction joints or pour joints shall be as indicated on approved shop drawings.
2. All concrete shall be vibrated during placement.
3. Provide ¾" chamfer on all exposed concrete corners.
4. Anchor Bolts, dowels, reinforcing steel, inserts, etc. shall be securely tied in place prior to pouring concrete. Concrete blocks only shall be used to support reinforcing off grade.
5. All reinforcement shall be detailed, fabricated, and placed in accordance with ACI 315.
6. Provide minimum concrete covering for reinforcement as follows:

Condition	Clear Cover
Concrete deposited against earth:	3 IN.
Formed surfaces exposed to weather or in contact with earth:	
Reinforcing Bars less than NO. 6	1.5 IN.
Reinforcing Bars NO. 6 or Larger	2 IN.

7. Provide dowels of same size and number from adjacent pour both vertically and horizontally to match typical reinforcing shown. Laps to be in accordance with the development length and lap splice schedule. Dowels shall be cleaned after pour.
8. Field welding or bending of reinforcing is not permitted except as indicated on the drawings or as approved by the structural engineer. Use low hydrogen electrodes grade E70 or E90 as required.
9. Approved electrical conduit material cast within structural concrete members shall conform to the following:
   a. Conduit in mat foundations:
      Diameter of a single conduit or two or more vertically stacked conduits (including crossovers) shall not exceed 1/3 of the thickness of the slab.
   b. Conduit in Elevated Slabs:
      Do not install conduit in concrete slabs on metal deck without prior approval of structural engineer.
10. Continuous Reinforcement in Walls and Footings may be spliced as required provided that bars are of the longest practical length and all splices are shown on the reinforcing bar shop drawings. Splices are to be staggered when possible. Provide lap splices and development lengths in accordance with the development length and lap splice schedule.
11. Coring of slabs, beams and columns or shear walls is not permitted. Provide sleeves for all penetrations prior to placing concrete. Locations to be approved by structural engineer.

Prefabricated Pre-Engineered Metal Roof Trusses

1. Roof truss layout and profiles shown on plans is schematic only. Final design is the responsibility of the contractor.
2. Roof Truss deflection shall meet the minimum International Building Code requirements.
3. Truss Manufacturer to provide and design truss hold down clips.
4. Truss Spacing to be nominally 2 feet on center.
5. Truss Manufacturer to provide all temporary and permanent bracing for trusses.
6. Shop drawings are required for all trusses. See specification for details.

Wood and Timber Framing Notes

1. See Table 2304.9.1 in the Wisconsin Commercial Building Code (IBC 2006) for all roof and wall fastening requirements.

Rough Carpentry Material Notes:

1. Each piece of lumber shall bear a grade stamp, indicating grades of material and rules or standards under which it was produced.
2. Sheathing: APA rated exposure 1 or exterior; panel grade CD or better.

Foundations

1. Column anchors shall be installed with a template to hold bars in place during concrete placement.
2. All footings shall bear on undisturbed soil. Foundation grades shall be inspected and approved by a geotechnical engineer prior to concrete form placement.
3. Refer to the geotechnical report for soil conditions.

Structural Abbreviations:

Arch.	Architectural
B.O.A.	Bottom Of
Brg.	Bearing
Conc.	Concrete
Cont.	Continuous
EQ.	Equal
Exist.	Existing
Flr.	Floor
FFE	Finished Floor Elevation
Ftg.	Footing
Horz.	Horizontal
Lvl.	Level
Max.	Maximum
Min.	Minimum
O.C.	On Center
PL	Plate
Reinf.	Reinforcement
Sched.	Schedule
T.O.F.	Top of Footing
T.O.W.	Top of Wall
Typ.	Typical
Vert.	Vertical

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

iΣSIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2003-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
933 N. MAYFAIR RD.,
SUITE 109
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

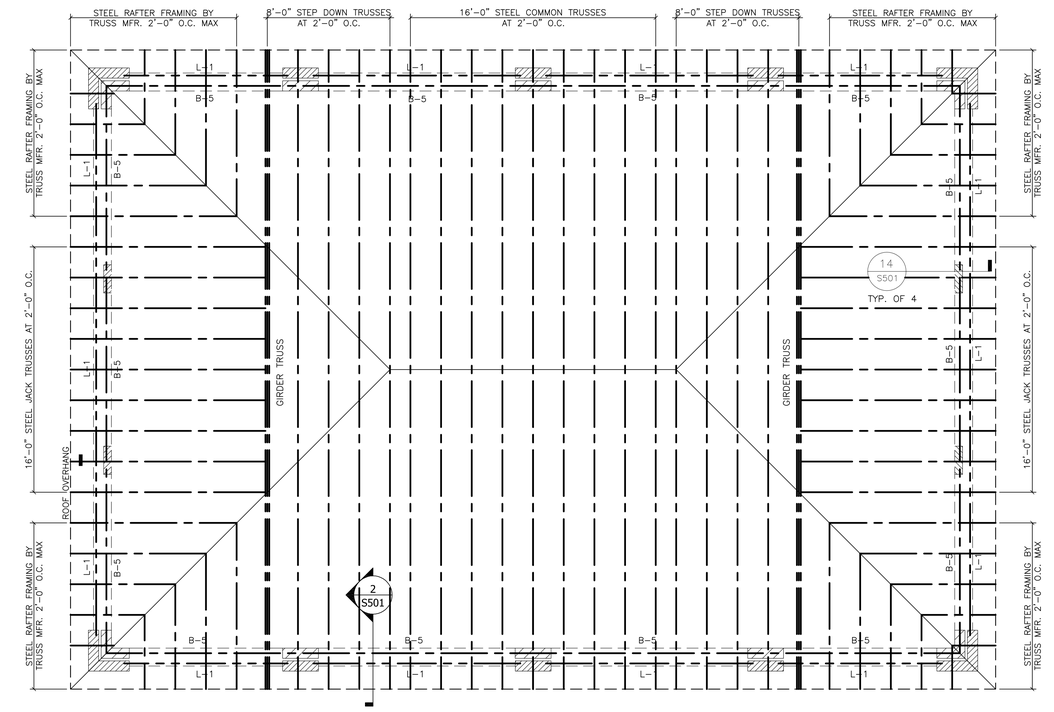
Drawing Title: Building 115 - New Construction Framing & Foundation Plans
Approved: Project Director
Project Title: Replace Electrical Sub-Station
Location: VA Medical Center,Milwaukee, WI
Date: 30 July 2012
Checked By: BPH
Drawn By: JAS
Project Number: 695-12-118
Building Number: 115
Drawing Number: S000

CONSTRUCTION DOCUMENTS

Office of Facilities Management

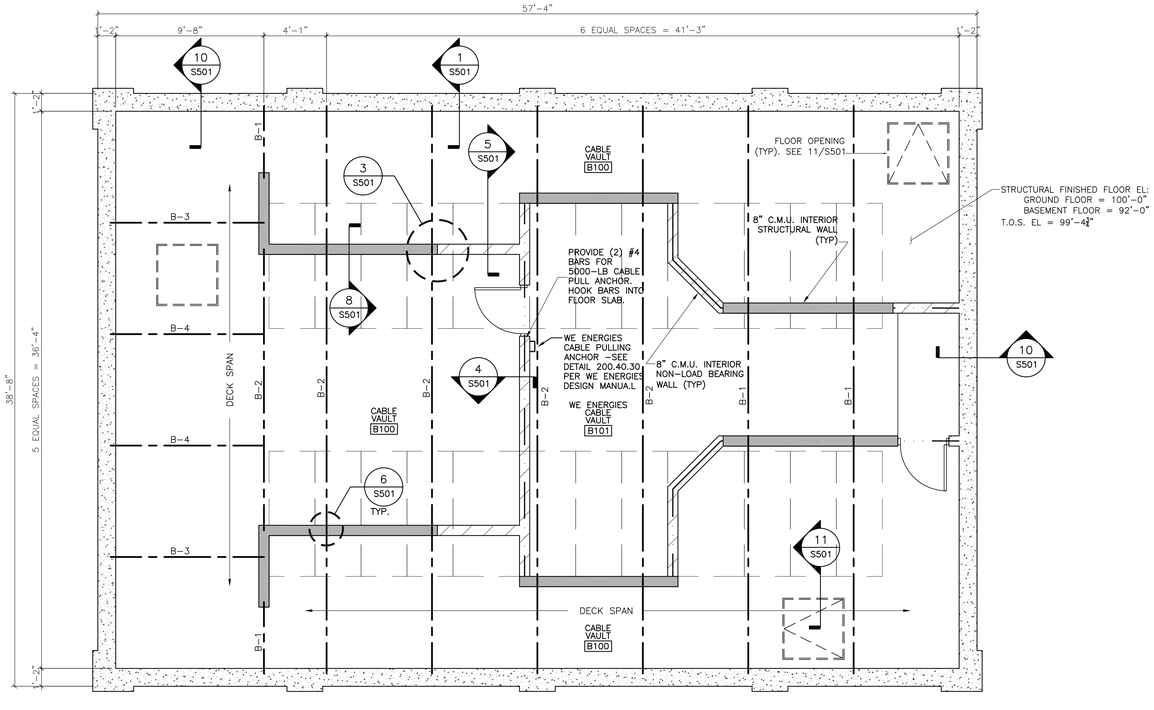
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978



BUILDING 115 - ROOF BEARING FRAMING PLAN

SCALE: $\frac{1}{4}$" = 1'-0"



BUILDING 115 - GROUND FLOOR STRUCTURAL FRAMING PLAN

SCALE: $\frac{1}{4}$" = 1'-0"

STEEL LINTEL SCHEDULE (LL-X)

MARK	STEEL ANGLE SIZE	END BEARING
L-1	L 8 x 4 x 7/16	8"

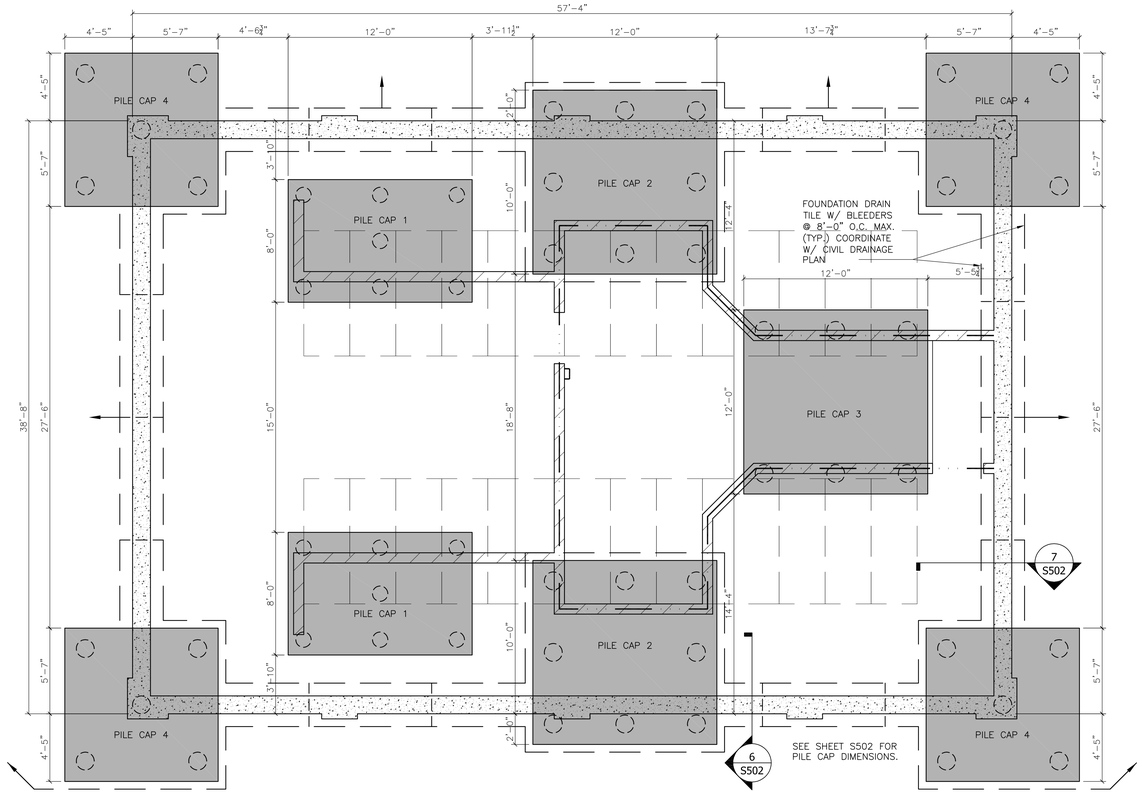
BEAM SCHEDULE

MARK	BEAM SIZE	CAMBER (in)	TOP OF STEEL ELEV.	REMARKS	Rows of Bolts	BOLT SIZE (in)	Weld Size (W) (in)	Min. Plate/Angle Thickness
FIRST FLOOR FRAMING								
B-1	W8x31		99'-4 3/4"	BEARING PLATES, BOTH ENDS	- SEE TYPICAL BEARING DETAIL -			
B-2	W8x67		99'-4 3/4"	BEARING PLATES, BOTH ENDS	- SEE TYPICAL BEARING DETAIL -			
B-3	W8x18		99'-4 3/4"	BEARING PLATES, BOTH ENDS	- SEE TYPICAL BEARING DETAIL -			
B-4	W8x18		99'-4 3/4"	BEARING PLATE WEST END, TYPE 'A' EAST END TO B-2	2	3/4"	1/4"	3/8"
B-5	W8x21		112'-0 5/8"	BEARING PLATES, BOTH ENDS	- SEE TYPICAL BEARING DETAIL -			
BEAM SCHEDULE NOTES:								
1.) SEE SHEETS S501 FOR BEAM CONNECTION DETAILS.								

NOTES:
1. BUILDING CONTRACTOR AND ELECTRICAL CONTRACTOR SHALL COORDINATE THE LOCATION OF THE STRUCTURAL BEAMS WITH THE CABLE LOCATIONS THROUGH THE FLOOR.
2. SEE SHEET S502 FOR FOUNDATION SECTIONS AND PILE CAPS
3. SEE SHEET S501 FOR TYPICAL STRUCTURAL DETAILS

ABBREVATIONS:

C.M.U. = CONCRETE MASONRY UNIT
TYP. = TYPICAL
EL. = ELEVATION
T.O.S. = TOP OF STEEL
O.C. = ON CENTER
MAX. = MAXIMUM



BUILDING 115 - FOUNDATION PLAN

SCALE: $\frac{1}{4}$" = 1'-0"

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP — Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

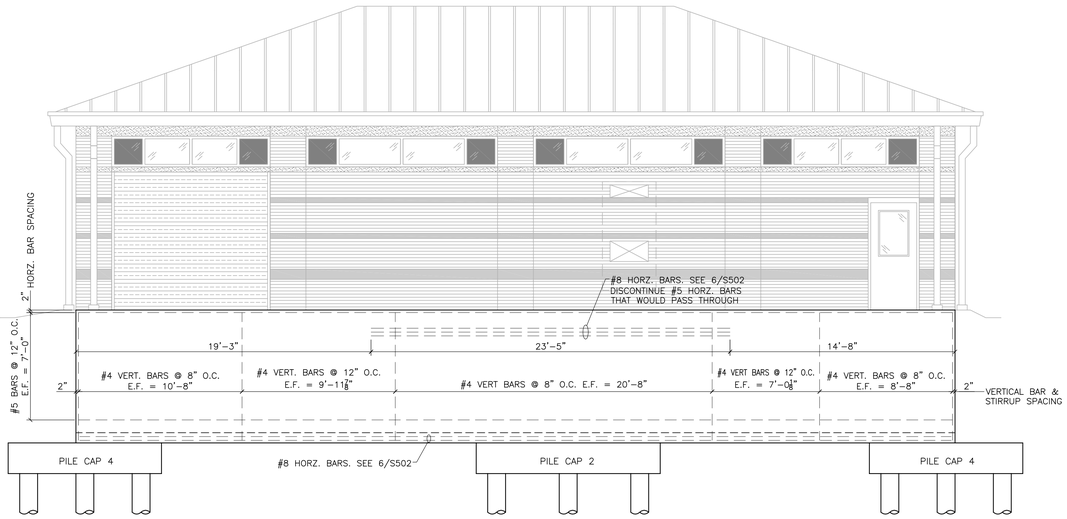
CHEQUAMEGON BAY ENGINEERING, INC.
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-5154

CONSTRUCTION DOCUMENTS

Drawing Title	Building 115 - New Construction Framing & Foundation Plans
Project Title	Replace Electrical Sub-Station
Project Number	695-12-118
Building Number	115
Approved: Project Director	
Location	VA Medical Center,Milwaukee, WI
Date	30 July 2012
Checked By:	BPH
Drawn By:	JAS
Drawing Number	S101

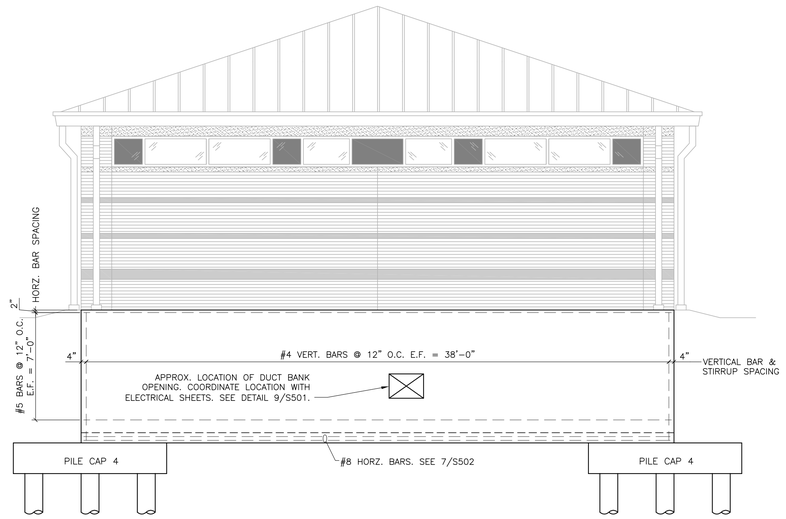
Office of Facilities Management
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978



BUILDING 115 - SOUTH ELEVATION

SCALE: ¼" = 1'-0"

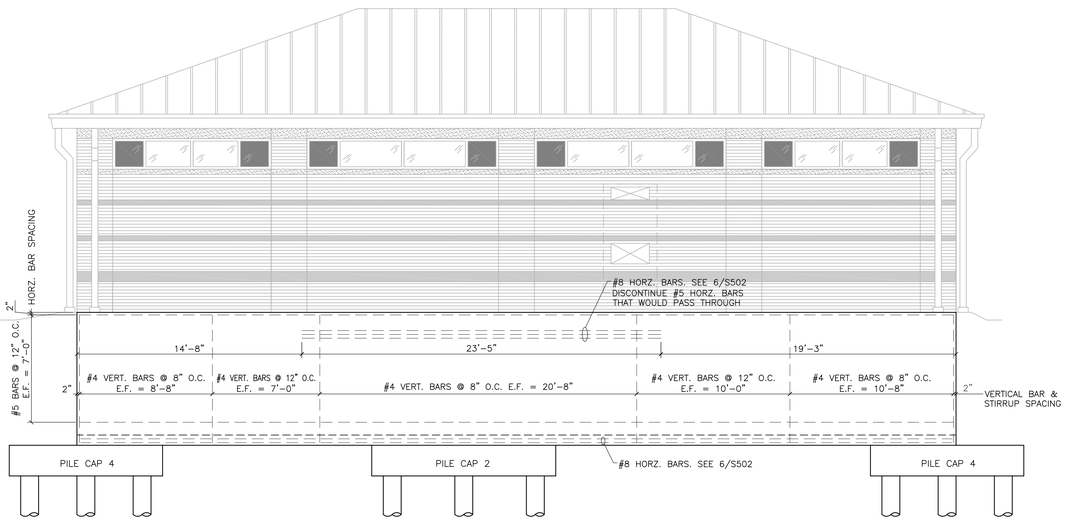


BUILDING 115 - EAST ELEVATION

SCALE: ¼" = 1'-0"

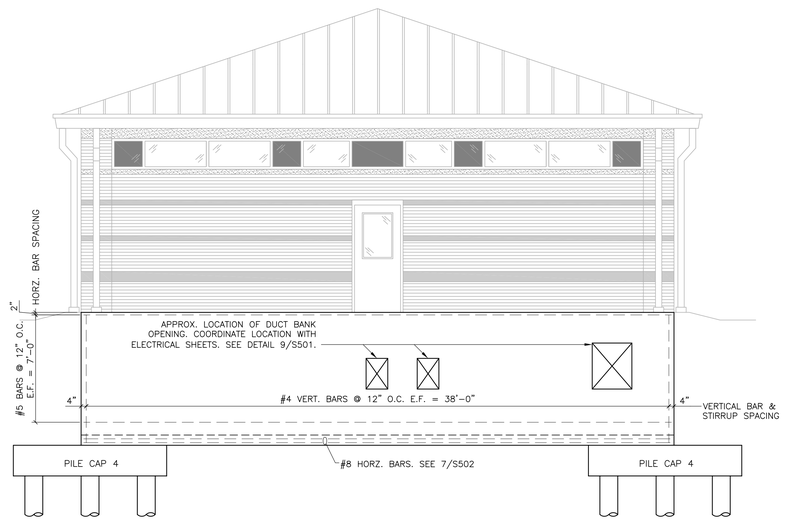
ABBREVATIONS:

HORZ. = HORIZONTAL
E.F. = EACH FACE
O.C. = ON CENTER
VERT. = VERTICAL



BUILDING 115 - NORTH ELEVATION

SCALE: ¼" = 1'-0"



BUILDING 115 - WEST ELEVATION

SCALE: ¼" = 1'-0"

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP
Single Source. Sound Solutions.
www.theslgmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2002-2012

ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025

MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

Drawing Title: Building 115 - Structural Elevations

Approved: Project Director

Project Title: Replace Electrical Sub-Station

Location: VA Medical Center,Milwaukee, WI

Date: 30 July 2012

Checked By: BPH

Drawn By: JAS

Project Number: 695-12-118

Building Number: 115

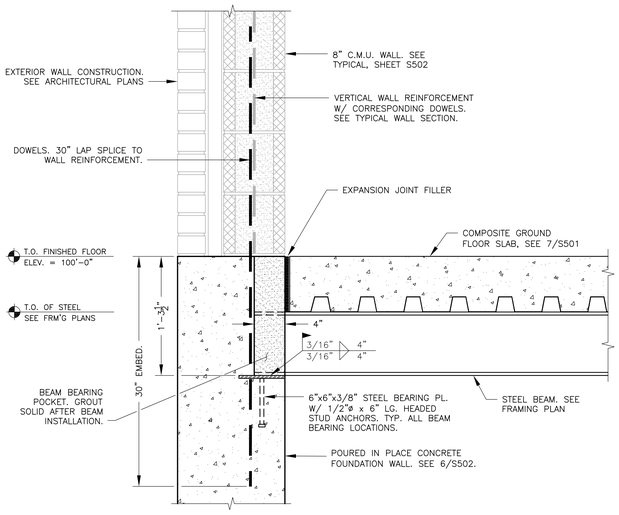
Drawing Number: S201

CONSTRUCTION DOCUMENTS

Office of Facilities Management

Department of Veterans Affairs

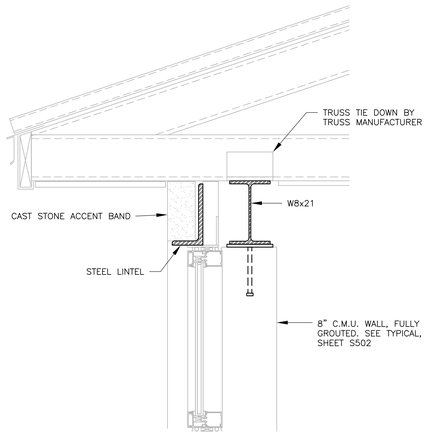
VA FORM 08-6231, OCT 1978



1 TYPICAL COMPOSITE FLOOR SLAB/STEEL BEAM BEARING DETAIL

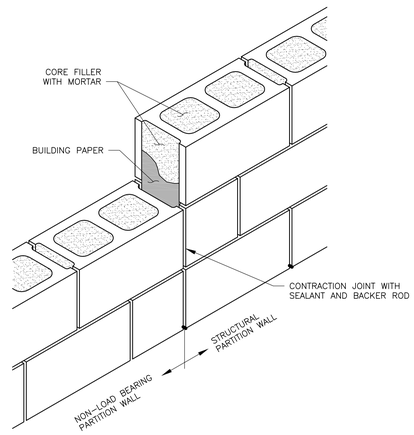
SEE BEAM SCHEDULE FOR ADDITIONAL BEAM CONNECTION & FRAMING REQUIREMENTS

SCALE: 1-1/2" = 1'-0"



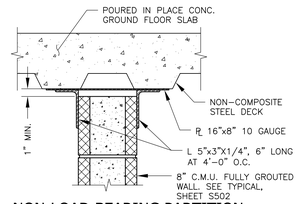
2 TYPICAL ROOF BEARING DETAIL

Scale: 1-1/2" = 1'-0"



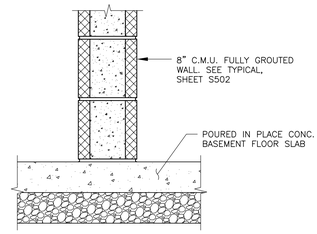
3 TYPICAL MASONRY WALL JOINT

SCALE: 1-1/2" = 1'-0"



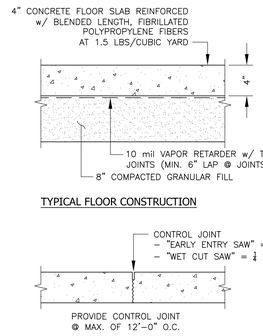
4 NON-LOAD BEARING PARTITION WALL AT GROUND FLOOR SLAB

SCALE: 1-1/2" = 1'-0"



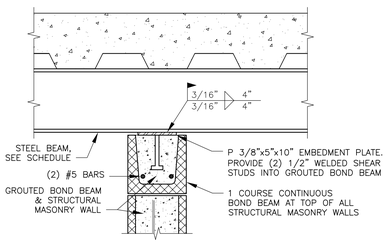
5 NON-LOAD BEARING PARTITION WALL FOUNDATION

SCALE: 1-1/2" = 1'-0"



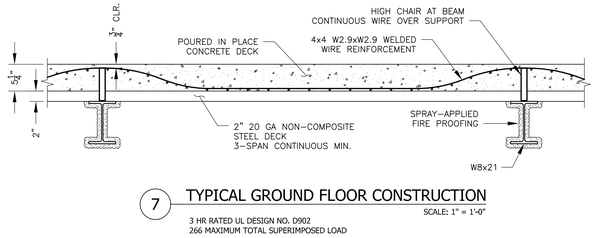
13 TYPICAL BASEMENT FLOOR CONSTRUCTION

NO SCALE



6 STEEL BEAM AT STRUCTURAL WALL

SCALE: 1-1/2" = 1'-0"



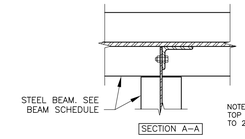
7 TYPICAL GROUND FLOOR CONSTRUCTION

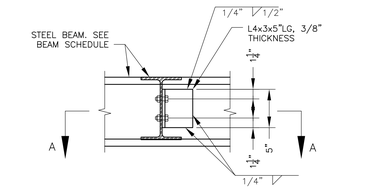
SCALE: 1" = 1'-0"

3 HR RATED UL DESIGN NO. D902
266 MAXIMUM TOTAL SUPERIMPOSED LOAD

ABBREVATIONS:

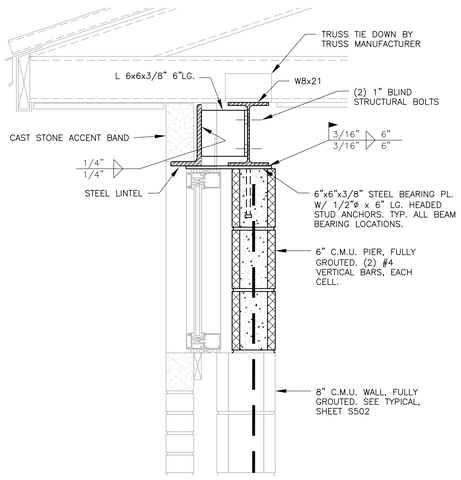
C.M.U. = CONCRETE MASONRY UNIT
TYP. = TYPICAL
T.O. = TOP OF
PL. = PLATE
LG. = LONG
MIN. = MINIMUM
CONC. = CONCRETE
O.C. = ON CENTER
MAX. = MAXIMUM
VERT. = VERTICAL
HORZ. = HORIZONTAL
E. F. = EACH FACE
CLR. = CLEAR
BETW. = BETWEEN
EMBED. = EMBEDMENT
R.O. = ROUGH OPENING
LT. = LIGHT
WWF = WOVEN WIRE FABRIC





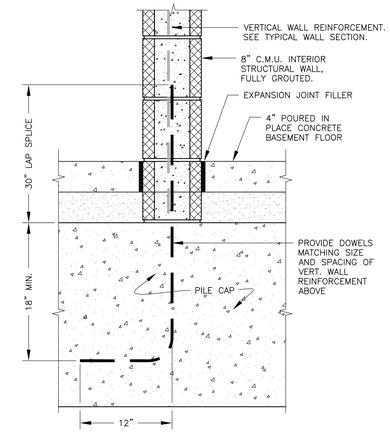
15 BEAM TO BEAM CONNECTION TYPE A

Scale: 1-1/2" = 1'-0"



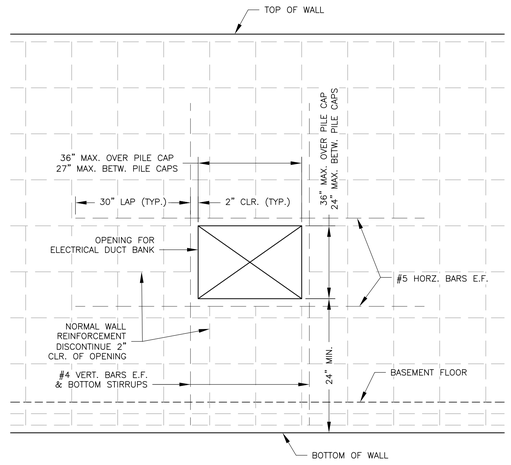
14 ROOF BEARING AT SPANDREL UNITS

Scale: 1-1/2" = 1'-0"



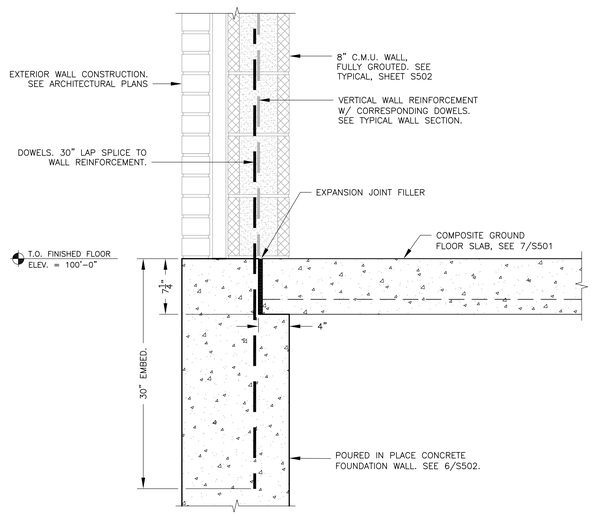
8 INTERIOR STRUCTURAL WALL AT PILE CAP

SCALE: 1-1/2" = 1'-0"



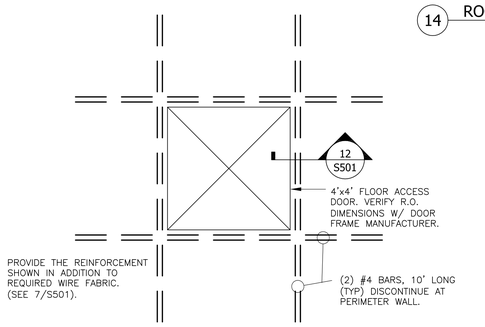
9 TYPICAL DUCT BANK OPENING DETAIL

Scale: 3/4" = 1'-0"



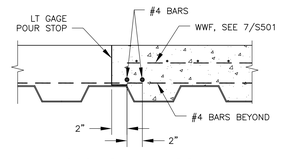
10 TYPICAL COMPOSITE FLOOR SLAB BEARING DETAIL AT EXTERIOR WALL

SCALE: 1-1/2" = 1'-0"



11 TYPICAL FLOOR ACCESS DOOR OPENING REINFORCEMENT

Scale: 1/2" = 1'-0"



12 SECTION AT FLOOR ACCESS DOOR OPENING

SCALE: 1-1/2" = 1'-0"

CONSTRUCTION DOCUMENTS

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC.
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2000-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

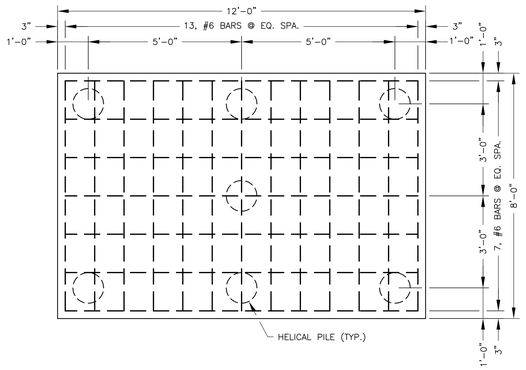
Drawing Title: Building 115 - Structural Details	Project Title: Replace Electrical Sub-Station
Approved: Project Director	Location: VA Medical Center,Milwaukee, WI
	Date: 30 July 2012
	Checked By: BPH
	Drawn By: JAS
	Project Number: 695-12-118
	Building Number: 115
	Drawing Number: S501

Office of Facilities Management
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978

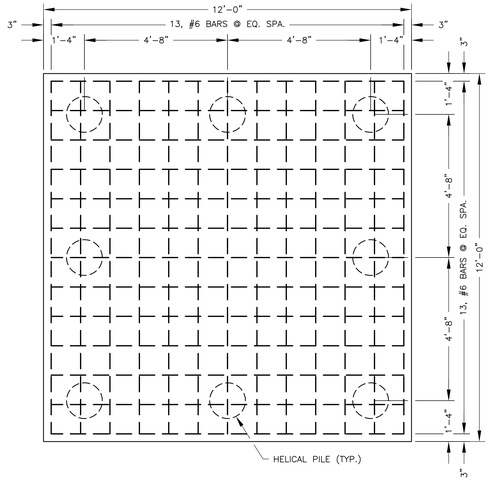
ABBREVATIONS:

EQ. = EQUAL
SPA. = SPACING
TYP. = TYPICAL
T.O. = TOP OF
FLR. = FLOOR
EL. = ELEVATION
ARCH. = ARCHITECTURAL
O.C. = ON CENTER
VERT. = VERTICAL
CLR. = CLEAR



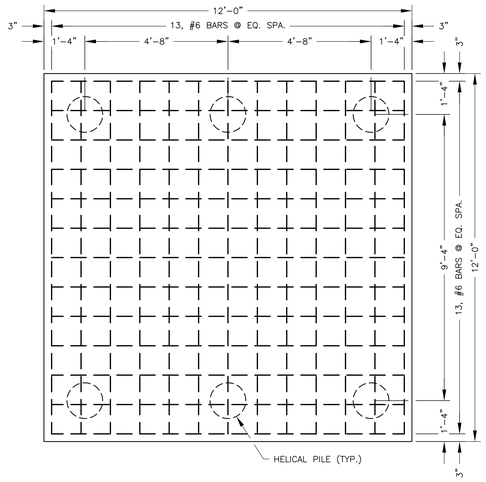
1 PILE CAP P-1 PLAN
Scale: 1/2" = 1'-0"

PILE CAP P-1
7 HELICAL PIERS, 18Kip ALLOWABLE CAPACITY
APPLIED LOAD = 120kip



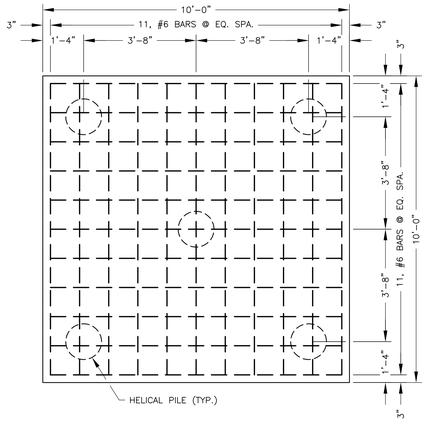
2 PILE CAP P-2 PLAN
Scale: 1/2" = 1'-0"

PILE CAP P-2
8 HELICAL PIERS, 26kip ALLOWABLE CAPACITY
APPLIED LOAD = 185kip



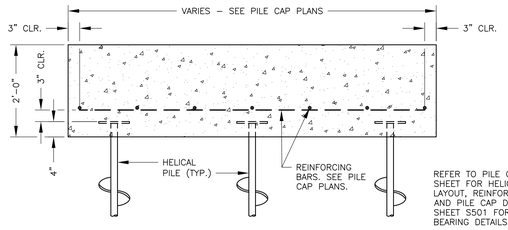
3 PILE CAP P-3 PLAN
Scale: 1/2" = 1'-0"

PILE CAP P-3
6 HELICAL PIERS, 26kip ALLOWABLE CAPACITY
APPLIED LOAD = 185kip



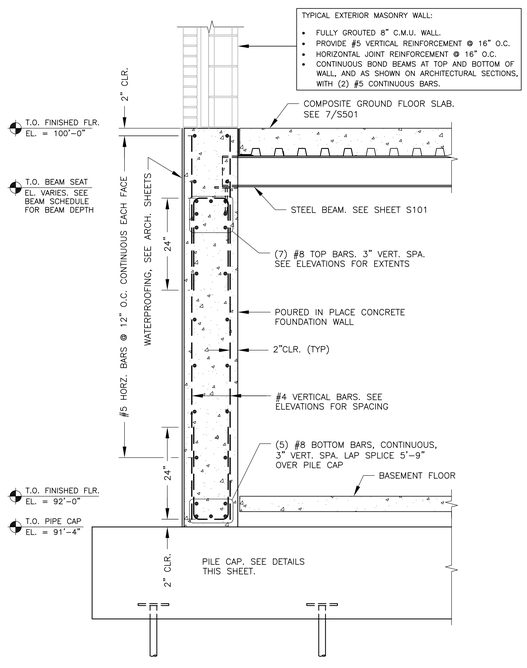
4 PILE CAP P-4 PLAN
Scale: 1/2" = 1'-0"

PILE CAP P-4
5 HELICAL PIERS, 26kip ALLOWABLE CAPACITY
APPLIED LOAD = 185kip

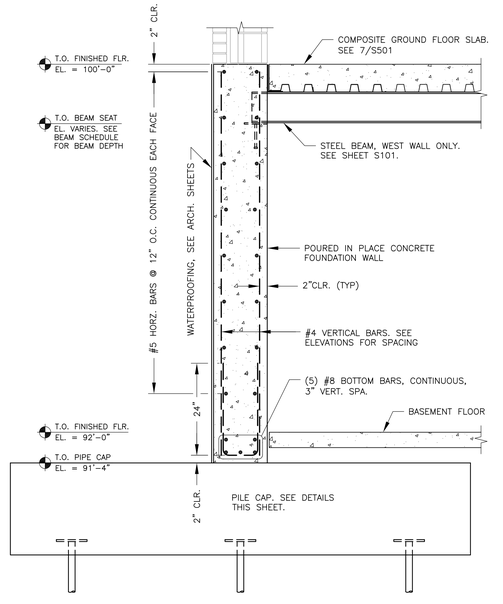


REFER TO PILE CAP PLANS THIS SHEET FOR HELICAL PIER SIZE AND LAYOUT, REINFORCING BAR LAYOUT, AND PILE CAP DIMENSIONS. REFER TO SHEET S501 FOR STRUCTURAL WALL BEARING DETAILS.

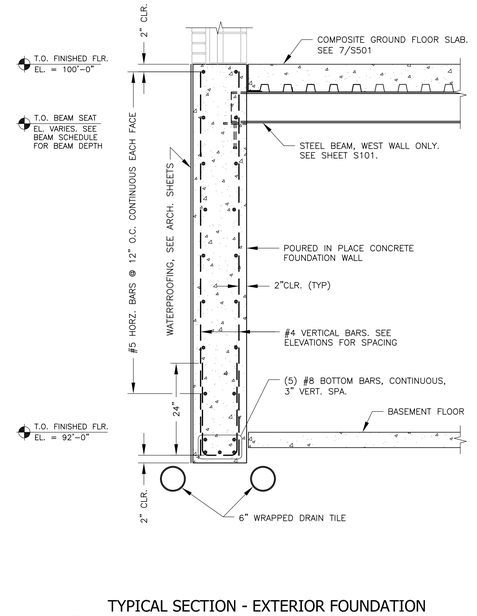
5 TYPICAL PILE CAP SECTION
Scale: 3/4" = 1'-0"



6 TYPICAL SECTION - N. & S. EXTERIOR FOUNDATION WALL
Scale: 3/4" = 1'-0"



7 TYPICAL SECTION - E. & W. EXTERIOR FOUNDATION WALL
Scale: 3/4" = 1'-0"



8 TYPICAL SECTION - EXTERIOR FOUNDATION WALL BETWEEN PILE CAPS
Scale: 3/4" = 1'-0"

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC.
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

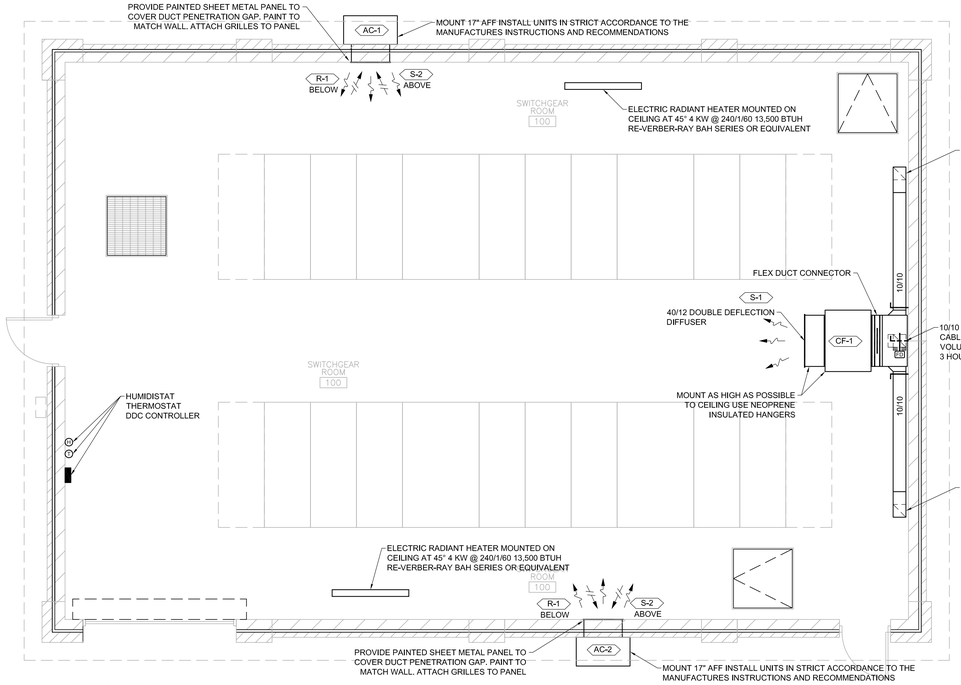
CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2000-2013
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

Drawing Title: Building 115 - Foundation Details	Project Title: Replace Electrical Sub-Station
Approved: Project Director	Location: VA Medical Center,Milwaukee, WI
	Date: 30 July 2012
	Checked By: BPH
	Drawn By: JAS
	Project Number: 695-12-118
	Building Number: 115
	Drawing Number: S502

CONSTRUCTION DOCUMENTS

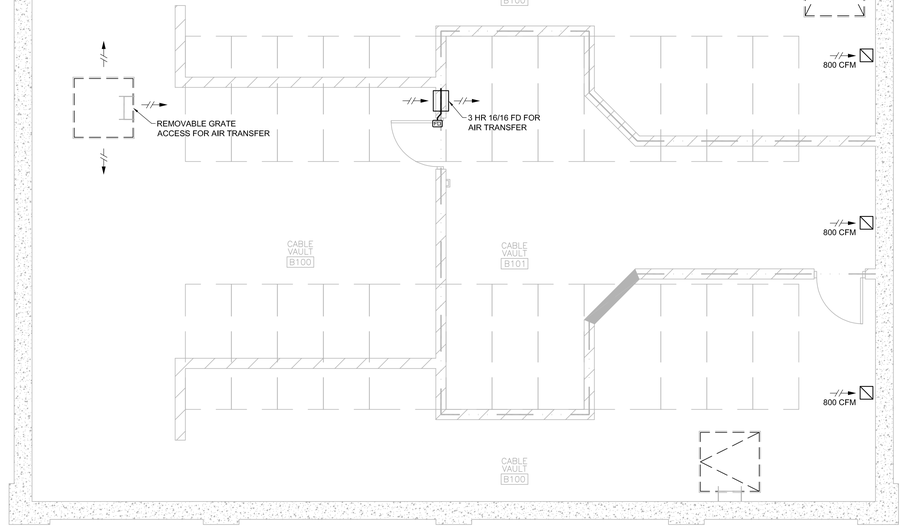
Office of Facilities Management
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978



SWITCH GEAR ROOM HVAC PLAN

SCALE: 1/4" = 1'-0"



CABLE VAULT HVAC PLAN

SCALE: 1/4" = 1'-0"

GRILLES REGISTERS AND DIFFUSER SCHEDULE

DESIG.	TYPE	MOUNTING	BASIS OF DESIGN MFG	BASIS OF DESIGN MODEL	AIRFLOW (CFM)	NECK SIZE IN	NOM. SIZE IN	THROW 150 FT	THROW 100 FT	THROW 50 FT	NC	CORE VELOCITY FPM	PRESSURE Pt IN WG	PRESSURE Pv IN WG	PRESSURE Ps IN WG	NOTES
S-1	DOUBLE DEFLECTION SUPPLY GRILLE	SURFACE	PRICE	32	2500	-	40 x 12	51	68	96	29	821	0.085	0.042	0.043	OFF WHITE FINISH, ALUMINUM CONSTRUCTION
S-2	DOUBLE DEFLECTION SUPPLY GRILLE	SURFACE	PRICE	32	1250	-	30 x 14	14	21	34	19	468	0.047	0.014	0.033	OFF WHITE FINISH, ALUMINUM CONSTRUCTION
R-1	1/2" SPACED 458 FIXED BLADE RETURN GRILL	SURFACE	PRICE	70	1250	-	30 x 16	-	-	-	31	406	-	0.010	-0.044	OFF WHITE FINISH, ALUMINUM CONSTRUCTION

PACKAGED HEAT PUMP SCHEDULE

DESIG.	BASIS OF DESIGN MFG	BASIS OF DESIGN MODEL	TYPE	REFRIGERATION TYPE	REFRIGERATION NOM. COOLING TONS	REFRIGERATION HEAT @ 178 BTUH	ELECTRIC HEAT KW	ELECTRIC REQU. V/PH/HZ	ELECTRIC MIN CIRC AMPS	ELECTRIC MAX FUSE AMPS	ACCESSORIES
AC-1	BARD	T42S-A15	THRU WALL	410A	3.500000	23,000	15.000000	208-230/1/60	86.000000	90.000000	ECONOMIZER, PROVIDE EMERGENCY SHUT DOWN RELAY AND CONTACTS
AC-2	BARD	T42S-A15	THRU WALL	410A	3.500000	23,000	15.000000	208-230/1/60	86.000000	90.000000	ECONOMIZER, PROVIDE EMERGENCY SHUT DOWN RELAY AND CONTACTS

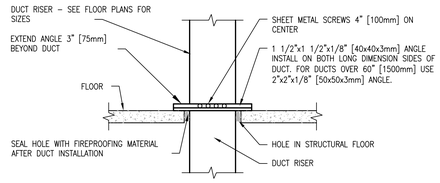
EQUIPMENT SHALL SHUT DOWN UPON A SIGNAL FROM THE BUILDING FIRE ALARM SYSTEM. MC SHALL PROVIDE RELAY AND CONTACT DEVICES; WIRING OF DEVICES BY E.C. AND TIE IN TO FIRE ALARM BY FIRE ALARM CONTRACTOR

MIN. CIRC. AMPS AND MAX. FUSE AMPS SHOWN ARE FOR SINGLE CIRCUIT WIRING. IF DUAL CIRCUITS ARE UTILIZED MIN CIRC AMPS CIRCUIT 1: 34 AMPS CIRCUIT 2: 52 AMPS; MAX FUSE AMP CIRCUIT 1: 40 AMPS CIRCUIT 2: 60 AMPS (EACH UNIT)

FAN SCHEDULE

DESIG	MFG	MODEL	TYPE	DRIVE	CFM	HP	ELECT	STARTER TYPE	STARTER BY	NOTES
CF-1	GREENHECK	BCF-210-7	INLINE CABINET	DIRECT	2400	3/4	115/1/60	N/A	EC	WALL SWITCH WITH RUN INDICATION LIGHT, MOTOR AMP SWITCH, EMERGENCY SHUTDOWN RELAY AND CONTACTS

FAN SHALL SHUT DOWN UPON A SIGNAL FROM THE BUILDING FIRE ALARM. MC TO PROVIDE RELAY AND CONTACTS FOR EMERGENCY SHUTDOWN. POWER WIRING OF DEVICES BY E.C AND FINAL TIE IN TO FIRE ALARM PANEL BY FIRE ALARM CONTRACTOR.

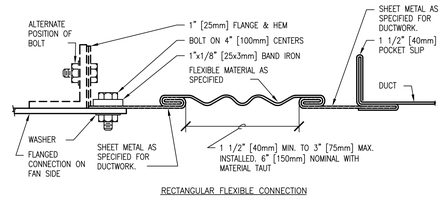


0.5 INCH WG [125Pa] TO 2 INCHES WG [500Pa] DUCT RISER SUPPORT

NOTE:
ALL DUCT WORK RISERS WHICH ARE RUN EXPOSED, SUCH AS THRU ATTIC FLOORS AND FAN ROOM FLOORS SHALL BE PROVIDED WITH A 3" [75mm] HIGH CONCRETE CURB AROUND OPENING FOR DUCT.

2 DUCT RISER SUPPORTS

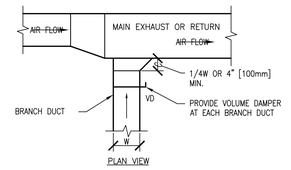
NTS



RECTANGULAR FLEXIBLE CONNECTION

3 FLEXIBLE DUCT CONNECTIONS

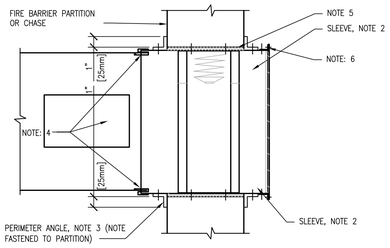
NTS



PLAN VIEW

1 EXHAUST OR RETURN BRANCH DUCTWORK

NTS



NOTE:

1. A VERTICAL DAMPER IS SHOWN. HORIZONTAL DAMPER INSTALLATION, 1S SIMILAR. FOLLOW DAMPER MANUFACTURER'S INSTRUCTIONS, INCLUDING FASTENER OPTIONS AND GAGES FOR SLEEVE AND PERIMETER ANGLES. FIRE DAMPERS MUST BE INSTALLED IN ACCORDANCE TO THEIR LISTING.
2. GALVANIZED SLEEVE: GAGE NOT LESS THAN CONNECTING DUCT. FASTEN SLEEVE TO DAMPER FRAME AND TO PERIMETER ANGLES.
3. PERIMETER ANGELS: GALVANIZED STEEL, NOT LESS THAN 1 1/2"x1 1/2" [40x40mm], 14 GAGE, TO PROVIDE 1" [25mm] MINIMUM OVERLAP OF OPENING ON ALL 4 SIDES.
4. BREAKAWAY DUCT CONNECTION: CONTRACTOR'S OPTION OF TYPES SHOWN IN SMACNA. ACCESS PANELS: SIZE AND LOCATION TO PERMIT SERVICING THE FUSIBLE LINK OR LINKS.
5. PROVIDE 1/4" TO 1/2" [6 TO 15mm] CLEARANCE ON HEIGHT AND WIDTH. FILL OPEN SPACE WITH ROCK WOOL FIRESTOP FIBER.
6. WHERE GRILLES OR REGISTERS ARE MOUNTED AT FIRE DAMPER LOCATION USE MINIMUM 16 GA SLEEVE. PROVIDE 16 GA ANGLES ATTACHED TO SLEEVE AS REQUIRED FOR GRILLE OR DIFFUSER MOUNTING. WHERE GRILLES ARE INSTALLED ACCESS PANELS NEED NOT BE PROVIDED.

4 SECTION THRU FIRE DAMPER INSTALLATION

NTS

LEGEND

	SUPPLY DUCT UP/DOWN
	RETURN DUCT UP/DOWN
	EXHAUST DUCT UP/DOWN
T	THERMOSTAT
MD	MOTORIZED DAMPER
FD	FIRE DAMPER
	POINT OF CONNECTION
	POINT OF DISCONNECTION
###	EQUIPMENT / MATERIAL DESIGNATION
D	DRAIN PIPING
LPS	LOW PRESSURE STEAM SUPPLY
LPR	LOW PRESSURE CONDENSATE RETURN
SD	STORM DRAIN PIPING
V	PLUMBING VENT PIPING
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
	SIDE ELBOW
	ELBOW UP
	ELBOW DOWN
	SIDE TEE
	TEE UP
	TEE DOWN
	STEAM TRAP
	WYE STRAINER
	GATE VALVE
	GLOBE VALVE
	BALL VALVE
	SWING CHECK VALVE
	TWO POSITION CONTROL VALVE

ABBREVIATIONS

MC MECHANICAL CONTRACTOR
EC ELECTRICAL CONTRACTOR
GC GENERAL CONTRACTOR
TFB TO FLOOR BELOW
AFF ABOVE FINISHED FLOOR
FFB FROM FLOOR BELOW
FFA FROM FLOOR ABOVE
FA FRESH AIR
MFG. MANUFACTURER/MANUFACTURED
CFM CUBIC FT PER MINUTE

GENERAL NOTES:

DRAWINGS ARE SCHEMATIC IN NATURE. ALTHOUGH EVERY EFFORT HAS BEEN MADE TO DEPICT ACTUAL CONDITIONS NOT ALL OFFSETS, FITTINGS AND CHANGES IN ELEVATION CAN BE SHOWN. CONTRACTOR SHALL ROUTE ALL MATERIAL AS CLOSE AS POSSIBLE WHERE INDICATED ON DRAWINGS. CONTRACTOR SHALL ADJUST ROUTING FOR EXISTING CONDITIONS AND AS REQUIRED TO AVOID CONFLICTS, PROVIDE ALL MATERIALS REQUIRED FOR SUCH ADJUSTMENTS WITHOUT INCREASED COST TO THE VETERANS ADMINISTRATION.

ALL WORK SHALL BE CARRIED OUT BY TRADESMEN NORMALLY INVOLVED IN THE WORK PERFORMED AND SHALL BE DONE IN ACCORDANCE WITH CURRENT VAMC, HVAC DESIGN GUIDES, NEC, NFPA, ASHRAE 90.1, STATE, LOCAL AND FEDERAL CODES.

CONTRACTOR SHALL VERIFY THE PRESENCE OF EXISTING CONDUIT IN THE EXISTING FLOOR SLABS PRIOR TO ANY CUTTING OR DRILLING.

IN THE CASE OF CONFLICTS OR DISCREPANCIES WITHIN OR AMONG THE CONTRACT DRAWINGS, THE BETTER QUALITY, MORE STRINGENT REQUIREMENTS OR GREATER QUANTITY OF WORK, AS DETERMINED BY THE GOVERNMENT, SHALL BE PROVIDED

CONTROLS SHALL BE PROVIDED BY JOHNSON CONTROLS. JOHNSON SHALL PROVIDE ALL DEVICES, CONTROL POINTS, WIRING, COMMUNICATIONS AND PROGRAMMING AS REQUIRED TO MEET THE SEQUENCE OF OPERATION AS STATED ON THIS SHEET. ALL CONTROLS SHALL COMMUNICATE WITH THE CAMPUS WIDE ENERGY MANAGEMENT SYSTEM (EMS). JOHNSON CONTROLS METASYS SYSTEM. JOHNSON CONTROLS IS ALSO REQUIRED FOR MONITORING AND CONTROL OF SEVERAL ELECTRICAL DEVICES AND SYSTEMS SEE ELECTRICAL DRAWINGS FOR REQUIREMENTS FOR THAT EQUIPMENT.

ALL DUCTWORK SHALL BE GALVANIZED STEEL AND CONSTRUCTED IN ACCORDANCE WITH THE LASTEST SMACNA DUCT CONSTRUCTION STANDARDS FOR 2" STATIC PRESSURE CLASS DUCTWORK.

PROVIDE FIRE STOPPING AND DAMPERS AT ALL PENETRITIONS THROUGH FIRE RATED WALLS AND FLOORS AS INDICATED. ALL FIRE STOPPING MATERIALS AND DAMPERS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS AND IN ACCORDANCE TO THEIR LISTING.

SEQUENCE OF OPERATION:

CONTROLLER SHALL MONITOR BUILDING TEMPERATURE AND HUMIDITY. UPON A TEMPERATURE RISE ABOVE ROOM SETPOINT (80 DEG ADJ.)THE CONTROLLER SHALL START AC-1 AND AC-2 FAN AND FIRST STAGE OF COOLING IF THE TEMPERATURE CONTINUES TO RISE CONTROLLER SHALL START SECOND STAGE OF COOLING ON AC-1 AND AC-2 AND CONTINUE TO RUN UNTIL ROOM SETPOINT IS SATISFIED. WHEN THE SETPOINT IS SATISFIED THE COMPRESSORS SHALL CYCLE OFF AND THE FAN SHALL SHUT OFF.,

IF THE HUMIDITY SENSOR SENSES A HUMIDITY HIGHER THAN ROOM SETPOINT (60% RH ADJ.) THE CONTROLLER SHALL START AC-1 AND AC-2 FAN AND FIRST STAGE OF COOLING IF THE HUMIDITY CONTINUES TO RISE CONTROLLER SHALL START SECOND STAGE OF COOLING ON AC-1 AND AC-2 AND CONTINUE TO RUN UNTIL ROOM SETPOINT IS SATISFIED. WHEN HUMIDITY SETPOINT IS SATISFIED THE COMPRESSORS SHALL CYCLE OFF AND THE FAN SHALL SHUT OFF. DURING PERIODS OF HIGH HUMIDITY THE CONTROLLER SHALL ALLOW THE TEMPERATURE TO FALL TO 70 DEG ADJ. IF THE TEMPERATURE FALLS BELOW HUMIDITY LOW TEMPERATURE SET POINT AND THE HUMIDITY SENSOR IS NOT SATISFIED AN ALARM SHALL BE SENT TO THE EMS.

AC-1 AND AC-2 WILL BE PROVIDED WITH ECONOMIZER CYCLE AND WILL LOCK OUT THE COMPRESSORS IF THE ENTHALPY SENSOR COOLDRY OUTSIDE AIR IS AVAILABLE FOR COOLING. THE CONTROLLER SHALL MONITOR OUTSIDE AIR TEMPERATURE AND HUMIDITY THROUGH ITS COMMUNICATION WITH THE EMS AND MONITOR COMPRESSOR OPERATION. IF THE OUTSIDE AIR TEMPERATURE AND HUMIDITY ARE ABOVE THE ENTHALPY SETPOINT OF AC-1 AND AC-2, THERE IS A CALL FOR COOLING OR HUMIDITY AND THE COMPRESSOR IS NOT RUNNING THE CONTROLLER SHALL SEND AN ALARM TO THE EMS NOTIFYING THE OPERATOR THE ECONOMIZER IS NOT WORKING CORRECTLY.

IF THE TEMPERATURE SENSOR SENSES A ROOM TEMPERATURE BELOW THE HEATING SETPOINT (60 DEG ADJ.) THE CONTROLLER SHALL ENERGIZE THE REVERSING VALVE AND START THE FIRST STAGE OF HEATING ON AC-1 AND AC-2. IF THE TEMPERATURE CONTINUES TO FALL CONTROLLER SHALL START BOTH RADIANT HEATING PANELS. IF THE TEMPERATURE CONTINUES TO FALL AC-1 AND AC-2 SHALL ENTER MANUFACTURES EMERGENCY HEAT MODE LOCKING OUT COMPRESSORS AND STAGE ON ELECTRICAL STRIP HEATING AND THE RADIANT HEATERS. THE REVERSE SHALL HAPPEN AS THE ROOM BECOMES SATISFIED. IF THE TEMPERATURE CONTINUES TO FALL AFTER EMERGENCY HEAT HAS BEEN STARTED AN ALARM SHALL BE SENT FOR HEATING FAIL TO THE EMS. IF THE EMS SENSES AN OUTSIDE AIR TEMPERATURE BELOW 5 DEG F (ADJ.) COMPRESSORS SHALL BE LOCKED OUT AND ELECTRIC STRIP HEATING ENABLED FOR BUILDING HEAT.

SF-1 SHALL RUN CONTINUOUSLY. THE CONTROLLER SHALL MONITOR SF-1 OPERATION THROUGH A CURRENT SWITCH AND SHALL SEND ALARM ON CF-1 FAIL.

CONTROLLER SHALL MONITOR RUNTIME ON AC-1, AC-2 AND CF-1 AND ALERT EMS OPERATOR FOR MAINTENANCE REQUIREMENTS. SWITCH GEAR ROOM TEMPERATURE AND HUMIDITY TRENDING REPORTS SHALL ALSO BE AVAILABLE.

CONSTRUCTION DOCUMENTS

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

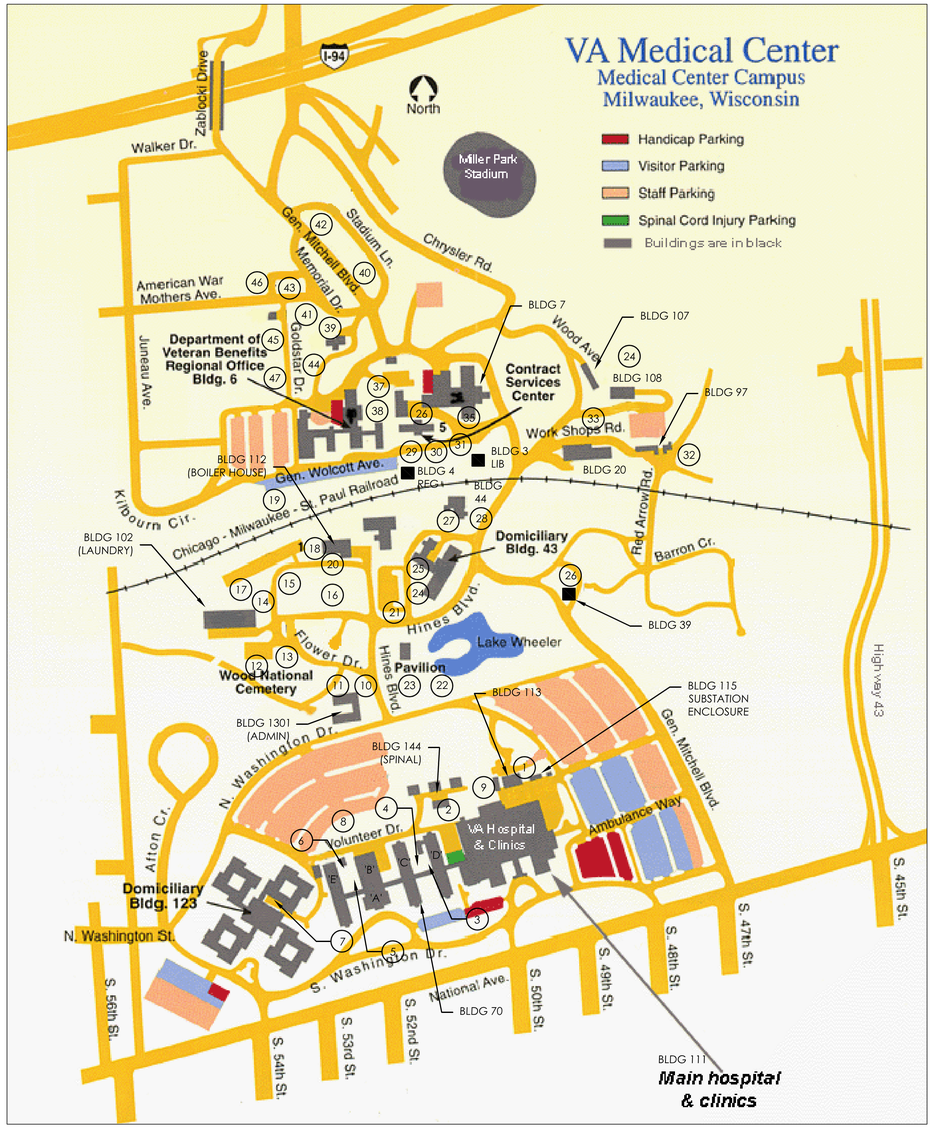
PROJECT LEADER/STRUCTURAL ENGINEER:

CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2003-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
933 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

Drawing Title	HVAC PLAN
Approved: Project Director	
Project Title	Replace Electrical Sub-Station
Location	VA Medical Center,Milwaukee, WI
Date	30 July 2012
Checked By:	
Drawn By:	JDG
Project Number	695-12-118
Building Number	115
Drawing Number	M101

Office of Facilities Management
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978



EXISTING PRIMARY ELECTRICAL DISTRIBUTION - FOR INFORMATIONAL PURPOSES ONLY:

1. HIGH VOLTAGE SWITCH "HVS-A."
2. HIGH VOLTAGE PRIMARY (BOX) "HVP."
3. TRANSFORMER "T73."
4. TRANSFORMER "T81."
5. TRANSFORMER "T79."
6. TRANSFORMER "T69."
7. HIGH VOLTAGE ENTRANCE EQUIPMENT LOCATED INSIDE BUILDING 123.
8. THE FOLLOWING IS LOCATED AT THIS LOCATION:
   A. HIGH VOLTAGE PRIMARY (BOX) "HVP."
   B. HIGH VOLTAGE SWITCH "SL2."
   C. TRANSFORMER "SL2."
   D. PANEL "SL2."
9. HIGH VOLTAGE PRIMARY (BOXES) - TWO EXISTING.
10. HIGH VOLTAGE PRIMARY (BOXES) "HVP."
11. TRANSFORMER "BUILDING 1301."
12. TRANSFORMER "XF40."
13. THE FOLLOWING IS LOCATED AT THIS LOCATION:
    A. HIGH VOLTAGE PRIMARY (BOX) "HVP16."
    B. TRANSFORMER "XF119."
    C. HIGH VOLTAGE SWITCH "HVS16."
14. TRANSFORMER "102."
15. TRANSFORMER "XF49."
16. HIGH VOLTAGE PRIMARY (BOX) "HVP15."
17. THE FOLLOWING IS LOCATED AT THIS LOCATION:
    A. HIGH VOLTAGE PRIMARY (BOX) "HVP20."
    B. HIGH VOLTAGE SWITCH "HVS20."
18. THE FOLLOWING IS LOCATED AT THIS LOCATION:
    A. HIGH VOLTAGE PRIMARY (BOX) "HVP18."
    B. HIGH VOLTAGE SWITCH "HVS18."
19. THE FOLLOWING IS LOCATED AT THIS LOCATION:
    A. HIGH VOLTAGE PRIMARY (BOX) "HVP27."
    B. TRANSFORMER "XF27."
    C. PANEL "27."
20. THE FOLLOWING IS LOCATED AT THIS LOCATION:
    A. HIGH VOLTAGE SWITCH "112."
    B. TRANSFORMER "112."
21. HIGH VOLTAGE PRIMARY (BOX) "HVP2."
22. HIGH VOLTAGE SWITCH "HVS SL1."
23. THE FOLLOWING IS LOCATED AT THIS LOCATION:
    A. HIGH VOLTAGE PRIMARY (BOX) "HVPK."
    B. TRANSFORMER "XFK."
    C. PANEL "K."
24. TRANSFORMER "XF43."
25. THE FOLLOWING IS LOCATED AT THIS LOCATION:
    A. HIGH VOLTAGE PRIMARY (BOX) "HVP4."
    B. HIGH VOLTAGE SWITCH "HVS4."
26. THE FOLLOWING IS LOCATED AT THIS LOCATION:
    A. HIGH VOLTAGE PRIMARY (BOX) "HVP11."
    B. HIGH VOLTAGE SWITCH "HVS11."
    C. TRANSFORMER "XF 39."
    D. PANEL "39."
27. HIGH VOLTAGE PRIMARY (BOX) "HVP8."
28. TRANSFORMER "XF41."
29. PANEL "2."
30. TRANSFORMER "XF3."
31. THE FOLLOWING IS LOCATED AT THIS LOCATION:
    A. HIGH VOLTAGE PRIMARY (BOX) "HVP29."
    B. TRANSFORMER "5."
32. TRANSFORMER "97."
33. THE FOLLOWING IS LOCATED AT THIS LOCATION:
    A. HIGH VOLTAGE PRIMARY (BOX) "HVP36."
    B. HIGH VOLTAGE SWITCH "HVS36."
    C. TRANSFORMER "XF20."
    D. TRANSFORMER "XF36."
    E. PANEL "2A."
34. THE FOLLOWING IS LOCATED AT THIS LOCATION:
    A. TRANSFORMER "108."
    B. PANEL "108."
35. THE FOLLOWING IS LOCATED AT THIS LOCATION:
    A. HIGH VOLTAGE PRIMARY (BOX) "HVP31."
    B. TRANSFORMER "5."
36. HIGH VOLTAGE SWITCH "XS2."
37. TRANSFORMER "XF7."
38. THE FOLLOWING IS LOCATED AT THIS LOCATION:
    A. HIGH VOLTAGE PRIMARY (BOX) "XVP30."
    B. TRANSFORMER "XF11."
    C. PANEL "11."
39. TRANSFORMER "XF12."
40. THE FOLLOWING IS LOCATED AT THIS LOCATION:
    A. HIGH VOLTAGE PRIMARY (BOX) "HVP44."
    B. TRANSFORMER "XF19."
    C. PANEL "19."
41. THE FOLLOWING IS LOCATED AT THIS LOCATION:
    A. HIGH VOLTAGE PRIMARY (BOX) "HVP41."
    B. HIGH VOLTAGE SWITCH "HVS41."
    C. PANEL "41."
42. THE FOLLOWING IS LOCATED AT THIS LOCATION:
    A. TRANSFORMER "62."
    B. PANEL "62."
43. HIGH VOLTAGE PRIMARY (BOX) "HVP42."
44. TRANSFORMER "6."
45. THE FOLLOWING IS LOCATED AT THIS LOCATION:
    A. HIGH VOLTAGE PRIMARY (BOX) "HVP40."
    B. TRANSFORMER "14."
    C. PANEL "14."
46. THE FOLLOWING IS LOCATED AT THIS LOCATION:
    A. TRANSFORMER "17."
    B. PANEL "17."
47. THE FOLLOWING IS LOCATED AT THIS LOCATION:
    A. TRANSFORMER "16."
    B. PANEL "16."

ELECTRICAL PHASING REQUIREMENTS

GENERAL CONDITIONS COMMON FOR ALL PHASING OPERATIONS:

A. THE CONTRACTOR SHALL REVIEW THE INTENDED PHASING OF WORK AND ASSESS THE IMPACT ON CONSTRUCTABILITY, SAFETY CONCERNS, AND OUTAGE DURATIONS.

B. THE CONTRACTOR SHALL IDENTIFY ANY SITE CONDITIONS OR DESIGN CONDITIONS WHICH MAY NEGATIVELY IMPACT PHASING AND ITS IMPACT. ANY CONCERNS SHALL BE COMMUNICATED IN WRITING AS A REQUEST FOR INFORMATION.

C. THE CONTRACTOR SHALL NOT PERFORM ANY WORK ON ENERGIZED EQUIPMENT AND SHALL BE IN COMPLIANCE WITH NFPA 70E "ELECTRICAL SAFETY IN THE WORKPLACE".

D. ALL ENERGIZED EQUIPMENT AFFECTING THE SAFE INSTALLATION OF CABLES AND CONNECTIONS SHALL BE SHUT-OFF, LOCKED-OUT AND TAGGED IN COMPLIANCE WITH NFPA 70E.

E. ALL WORK REQUIRING SHUT-DOWN OF ENERGIZED EQUIPMENT SHALL BE PERFORMED IN MAXIMUM 4 HOUR OUTAGES.

F. BEFORE ANY OUTAGE MAY OCCUR THE FOLLOWING CONDITIONS SHALL BE SATISFIED:
1. ALL EXISTING FEEDERS IN THE EXISTING BUILDING 115 WEST CABLE VAULT HAVE BEEN PROPERLY IDENTIFIED AND LABELED.
2. THE NEW MEDIUM VOLTAGE SWITCHGEAR BUILDING IS COMPLETED AND WATERTIGHT.
3. THE NEW SWITCHGEAR BUILDING IS TEMPERATURE CONTROLLED.
4. THE NEW METAL CLAD VACUUM SWITCHGEAR HAS BEEN RECEIVED, SET IN PLACE AND SUCCESSFULLY ACCEPTANCE TESTED.
5. THE NEW 15 kV FEEDER SECTIONS HAVE BEEN PULLED INTO THE EXISTING BUILDING 115 WEST CABLE VAULT. (THIS MAY OCCUR IN STAGES AS FEEDER TIE-INS OCCUR, SO AS NOT TO IMPEDE WORKING SPACE INSIDE THE VAULT.
6. MEDIUM VOLTAGE CABLES HAVE BEEN PRELIMINARY TESTED ON THE REELS, SO AS NOT TO INSTALL DAMAGED OR COMPROMISED CABLE. CAREFULLY RESEAL CABLE ENDS AND ELEVATE OFF GROUND TO PREVENT THE WICKING OF MOISTURE INTO THE CABLE.
7. THE 15 kV SECTIONALIZING TERMINATION CABINETS ARE INSTALLED AND HAVE BEEN SUCCESSFULLY ACCEPTANCE TESTED.
8. THE RUBBER TERMINATION BOLTED DEAD-BREAK ELBOWS HAVE BEEN INVENTORIED AND INSPECTED FOR COMPATIBILITY WITH THE DIAMETERS OF THE CABLE BEING USED. TEST OPERATION OF ELBOWS AND INSPECT FOR ANY FLAWS OR VISIBLE DAMAGE.
9. THE SHORT CIRCUIT, COORDINATED PROTECTION AND ARC FLASH STUDY HAS BEEN COMPLETED FOR NEW SYSTEM AND HAS BEEN REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO ANY OUTAGES.

G. THE CONTRACTOR SHALL ATTEND A PLANNING MEETING WITH THE VA RESIDENT ENGINEER 10 WORKING DAYS IN ADVANCE OF EACH OUTAGE TO DISCUSS AND DOCUMENT THE FOLLOWING:
1. WHAT LOADS WILL BE AFFECTED BY THE OUTAGE.
2. THE ANTICIPATED LENGTH OF EACH OUTAGE.
3. ANY SPECIAL NEEDS FOR TEMPORARY POWER.
4. CONTINGENCY PLANS IF AN UNPLANNED OUTAGE WERE TO OCCUR AT THE SAME TIME AS THE PLANNED OUTAGE.
5. OTHER MAINTENANCE WORK BEING PERFORMED BY THE VA DURING THE OUTAGE AND ITS IMPACT ON THE OUTAGE DURATION.
6. REQUIREMENT FOR BARRIERS, SIGNAGE AND PUBLIC SAFETY.

H. THE CONTRACTOR SHALL ATTEND A FINAL PLANNING MEETING THE MORNING OF THE OUTAGE TO CONFIRM ALL ITEMS PREVIOUSLY DISCUSSED AND DETERMINE WHETHER ANY CORRECTIONS TO PREVIOUS DECISIONS ARE NECESSARY. CONTRACTOR SHALL NOTIFY OWNER OF ANY EXPECTED CHANGES AT THIS TIME.

I. THE CONTRACTOR SHALL ATTEND AN OUTAGE STATUS MEETING SCHEDULED BY THE VA JUST PRIOR TO THE OUTAGE TO DISCUSS COMMUNICATIONS AND AUTHORIZATIONS AND ANY OTHER SPECIAL NEEDS.

J. THE CONTRACTOR SHALL ASSUME ALL OUTAGES WILL OCCUR AT PREMIUM TIME DURING WEEKENDS AND EVENINGS.

K. OSHA CONFINED SPACE PROCEDURES SHALL BE FOLLOWED WHENEVER WORK IS OCCURRING IN CABLE VAULTS AND MANHOLES.

L. CONTRACTORS SHALL BE RESPONSIBLE FOR LOCK-OUT AND TAG-OUT PROCEDURES FOR THE WORK THEY PERFORM AND SHALL PARTICIPATE IN LOCK OUT AND TAG OUT OF WORK BEING PERFORMED BY THE VA OR WE-ENERGIES WHICH MAY IMPACT THE SAFETY OF THE CONTRACTOR'S EMPLOYEES.

M. THE CONTRACTOR SHALL ATTEND PLANNING MEETINGS SCHEDULED BY THE VA WITH WE-ENERGIES IN ATTENDANCE TO DISCUSS THE REQUIREMENT S FOR TRANSFERING WE-ENERGIES FEEDERS FROM THE OLD SWITCHGEAR TO THE NEW SWITCHGEAR.

N. IT IS INTENDED THAT THE NEW SWITCHGEAR IS ENERGIZED WITH ALL THREE INCOMING WE-ENERGIES LINES. SIMULTANEOUSLY THE EXISTING SWITCHGEAR SHALL BE ENERGIZED BY THE TWO EXISTING WE-ENERGIES INCOMING LINES, UNTIL ALL FEEDERS ARE TRANSFERRED OVER TO NEW SWITCHGEAR.

O. ONE FEEDER SHALL BE TRANSFERRED FROM THE OLD SWITCHGEAR TO THE NEW SWITCHGEAR PER OUTAGE.

P. REMOVAL OF THE EXISTING SWITCHGEAR CAN OCCUR 1 WEEK AFTER COMPLETE ENERGIZIATION OF THE NEW SWITCHGEAR AND THE TRANSFER OF FEEDERS HAS OCCURRED AND THE EXISTING SWITCHGEAR HAS BEEN DE-ENERGIZED.

Q. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND REMOVAL OF EXISTING BUILDING 115 AND ITS CONTENTS.

TRANSFER OF INDIVIDUAL FEEDERS

1. BUILDING 144 FEEDER OUTAGE

STEP 1
a. ENSURE THAT NEW ASSOCIATED CIRCUIT BREAKER HAS BEEN OPENED AND RACKED-OUT AND LOCKED-OUT AND TAGGED-OUT.
b. TERMINATE NEW FEEDER SECTION FROM SECTIONALIZING CABINET TO NEW SWITCHGEAR.
c. PERFORM ACCEPTANCE TEST ON NEW FEEDER SECTION.

STEP 2
(PERFORM ONLY AFTER SUCCESSFUL ACCEPTANCE TEST OF NEW FEEDER SECTION IN STEP 1)
a. OPENED AND RACKED-OUT EXISTING AND NEW FEEDER CIRCUIT BREAKERS, LOCK-OUT AND TAG-OUT BOTH CIRCUIT BREAKERS.
b. REMOVE EXISTING TERMINATIONS AND PULL BACK EXISTING 15 kV FEEDER SECTION INTO EXISTING BUILDING 115 WEST CABLE VAULT.
c. TERMINATE EXISTING FEEDER SECTION TO REMAIN IN CORRESPONDING SECTIONALIZING CABINET.
d. PERFORM MAINTENANCE TEST ON THE EXISTING FEEDER SECTION.
e. ENERGIZE FEEDER FROM NEW SWITCHGEAR.

2. BUILDING 123 FEEDER OUTAGE

STEP 1
a. ENSURE THAT NEW ASSOCIATED CIRCUIT BREAKER HAS BEEN OPENED AND RACKED-OUT AND LOCKED-OUT AND TAGGED-OUT.
b. TERMINATE NEW FEEDER SECTION FROM SECTIONALIZING CABINET TO NEW SWITCHGEAR.
c. PERFORM ACCEPTANCE TEST ON NEW FEEDER SECTION.

STEP 2
(PERFORM ONLY AFTER SUCCESSFUL ACCEPTANCE TEST OF NEW FEEDER SECTION IN STEP 1)
a. CONNECT VA PORTABLE GENERATOR TO BUILDING 123.
b. OPENED AND RACKED-OUT EXISTING AND NEW FEEDER CIRCUIT BREAKERS, LOCK-OUT AND TAG-OUT BOTH CIRCUIT BREAKERS.
c. REMOVE EXISTING TERMINATIONS AND PULL BACK EXISTING 15 kV FEEDER SECTION INTO EXISTING BUILDING 115 WEST CABLE VAULT.
d. TERMINATE EXISTING FEEDER SECTION TO REMAIN IN CORRESPONDING SECTIONALIZING CABINET.
e. PERFORM MAINTENANCE TEST ON THE EXISTING FEEDER SECTION.
f. ENERGIZE FEEDER FROM NEW SWITCHGEAR.

3. BUILDING 70 WING A/B AND WING D FEEDER OUTAGE

STEP 1
a. ENSURE THAT NEW ASSOCIATED CIRCUIT BREAKER HAS BEEN OPENED AND RACKED-OUT AND LOCKED-OUT AND TAGGED-OUT.
b. TERMINATE NEW FEEDER SECTION FROM SECTIONALIZING CABINET TO NEW SWITCHGEAR.
c. PERFORM ACCEPTANCE TEST ON NEW FEEDER SECTION.

STEP 2
(PERFORM ONLY AFTER SUCCESSFUL ACCEPTANCE TEST OF NEW FEEDER SECTION IN STEP 1)
a. START-UP GENERATORS FEEDING BUILDING 70 AND CLOSE TRANSITION TRANSFER TO GENERATOR POWER.
b. OPENED AND RACKED-OUT EXISTING AND NEW FEEDER CIRCUIT BREAKERS, LOCK-OUT AND TAG-OUT BOTH CIRCUIT BREAKERS.
c. REMOVE EXISTING TERMINATIONS AND PULL BACK EXISTING 15 kV FEEDER SECTION INTO EXISTING BUILDING 115 WEST CABLE VAULT.
d. TERMINATE EXISTING FEEDER SECTION TO REMAIN IN CORRESPONDING SECTIONALIZING CABINET.
e. PERFORM MAINTENANCE TEST ON THE EXISTING FEEDER SECTION.
f. ENERGIZE FEEDER FROM NEW SWITCHGEAR.

4. BUILDING 70 WING C AND WING E FEEDER OUTAGE

STEP 1
a. ENSURE THAT NEW ASSOCIATED CIRCUIT BREAKER HAS BEEN OPENED AND RACKED-OUT AND LOCKED-OUT AND TAGGED-OUT.
b. TERMINATE NEW FEEDER SECTION FROM SECTIONALIZING CABINET TO NEW SWITCHGEAR.
c. PERFORM ACCEPTANCE TEST ON NEW FEEDER SECTION.

STEP 2
(PERFORM ONLY AFTER SUCCESSFUL ACCEPTANCE TEST OF NEW FEEDER SECTION IN STEP 1)
a. START-UP GENERATORS FEEDING BUILDING 70 AND CLOSE TRANSITION TRANSFER TO GENERATOR POWER.
b. OPENED AND RACKED-OUT EXISTING AND NEW FEEDER CIRCUIT BREAKERS, LOCK-OUT AND TAG-OUT BOTH CIRCUIT BREAKERS.
c. REMOVE EXISTING TERMINATIONS AND PULL BACK EXISTING 15 kV FEEDER SECTION INTO EXISTING BUILDING 115 WEST CABLE VAULT.
d. TERMINATE EXISTING FEEDER SECTION TO REMAIN IN CORRESPONDING SECTIONALIZING CABINET.
e. PERFORM MAINTENANCE TEST ON THE EXISTING FEEDER SECTION.
f. ENERGIZE FEEDER FROM NEW SWITCHGEAR.

5. NORTH CAMPUS FEEDER "HVS-A" FEEDER OUTAGE
a. ENSURE THAT NEW ASSOCIATED CIRCUIT BREAKER HAS BEEN OPENED AND RACKED-OUT AND LOCKED-OUT AND TAGGED-OUT.
b. START-UP GENERATORS FEEDING BUILDING 112 AND TRANSFER OVER TO GENERATOR POWER.
c. OPENED AND RACKED-OUT EXISTING FEEDER CIRCUIT BREAKER, LOCK-OUT AND TAG-OUT.
d. REMOVE EXISTING 15 kV FEEDER SECTION FROM EXISTING "HVS-A" TO THE EXISTING SWITCHGEAR.
e. TERMINATE NEW FEEDER SECTION IN EXISTING HIGH VOLTAGE SWITCH "HVS-A" AND IN NEW SWITCHGEAR.
f. PERFORM ACCEPTANCE TEST ON NEW FEEDER SECTION.
g. ENERGIZE FEEDER FROM NEW SWITCHGEAR.

6. BUILDING 113 TRANSFORMER #1 FEEDER OUTAGE
a. ENSURE THAT NEW ASSOCIATED CIRCUIT BREAKER HAS BEEN OPENED AND RACKED-OUTAND LOCKED-OUT AND TAGGED-OUT.
b. OPENED AND RACKED-OUT EXISTING FEEDER CIRCUIT BREAKER, LOCK-OUT AND TAG-OUT.
c. REMOVE EXISTING 15 kV FEEDER FROM PRIMARY SIDE OF TRANSFORMER TO THE EXISTING SWITCHGEAR.
d. TERMINATE NEW FEEDER ON PRIMARY SIDE OF TRANSFORMER IN BUILDING 113 AND IN NEW SWITCHGEAR.
e. PERFORM ACCEPTANCE TEST ON NEW FEEDER SECTION.
f. ENERGIZE FEEDER FROM NEW SWITCHGEAR.

7. BUILDING 113 TRANSFORMER #2 FEEDER OUTAGE
a. ENSURE THAT NEW ASSOCIATED CIRCUIT BREAKER HAS BEEN OPENED AND RACKED-OUT AND LOCKED-OUT AND TAGGED-OUT.
b. OPENED AND RACKED-OUT EXISTING FEEDER CIRCUIT BREAKER, LOCK-OUT AND TAG-OUT.
c. REMOVE EXISTING 15 kV FEEDER FROM PRIMARY SIDE OF TRANSFORMER TO THE EXISTING SWITCHGEAR.
d. TERMINATE NEW FEEDER ON PRIMARY SIDE OF TRANSFORMER IN BUILDING 113 AND IN NEW SWITCHGEAR.
e. PERFORM ACCEPTANCE TEST ON NEW FEEDER SECTION.
f. ENERGIZE FEEDER FROM NEW SWITCHGEAR.

8. BUILDING 111 TRANSFORMER #4 FEEDER OUTAGE
a. ENSURE THAT NEW ASSOCIATED CIRCUIT BREAKER HAS BEEN OPENED AND RACKED-OUT AND LOCKED-OUT AND TAGGED-OUT.
b. START-UP GENERATORS FEEDING BUILDING 111 AND CLOSE TRANSITION TRANSFER ATS/4EQ AUTOMATIC TRANSFER SWITCH TO GENERATOR POWER.
c. PERFORM PROCEDURE TO FEED 480V NORMAL SWITCHGEAR THROUGH TIE CIRCUIT BREAKER, LOCATED IN SG-3N.
d. OPENED AND RACKED-OUT EXISTING FEEDER CIRCUIT BREAKER, LOCK-OUT AND TAG-OUT.
e. REMOVE EXISTING 15 kV FEEDER FROM PRIMARY SIDE OF TRANSFORMER, TO THE EXISTING SWITCHGEAR.
f. TERMINATE NEW FEEDER FROM NEW BUILDING 115 ON PRIMARY SIDE OF TRANSFORMER IN BUILDING 111 AND IN NEW SWITCHGEAR.
g. PERFORM ACCEPTANCE TEST ON NEW FEEDER SECTION.
h. ENERGIZE FEEDER FROM NEW SWITCHGEAR.

9. BUILDING 111 TRANSFORMER #3 FEEDER OUTAGE
a. ENSURE THAT NEW ASSOCIATED CIRCUIT BREAKER HAS BEEN OPENED AND RACKED-OUT AND LOCKED-OUT AND TAGGED-OUT.
b. START-UP GENERATORS FEEDING BUILDING 111 AND CLOSE TRANSITION TRANSFER ATS/3EQ AUTOMATIC TRANSFER SWITCH TO GENERATOR POWER.
c. PERFORM PROCEDURE TO FEED 480V NORMAL SWITCHGEAR THROUGH TIE CIRCUIT BREAKER LOCATED IN SG-4N.
d. OPENED AND RACKED-OUT EXISTING FEEDER CIRCUIT BREAKER, LOCK-OUT AND TAG-OUT.
e. REMOVE EXISTING 15 kV FEEDER FROM PRIMARY SIDE OF TRANSFORMER, TO THE EXISTING SWITCHGEAR.
f. TERMINATE NEW FEEDER FROM NEW BUILDING 115 ON PRIMARY SIDE OF TRANSFORMER IN BUILDING 111 AND IN NEW SWITCHGEAR.
g. PERFORM ACCEPTANCE TEST ON NEW FEEDER SECTION.
h. ENERGIZE FEEDER FROM NEW SWITCHGEAR.

10. BUILDING 111 TRANSFORMER #2 FEEDER OUTAGE
a. ENSURE THAT NEW ASSOCIATED CIRCUIT BREAKER HAS BEEN OPENED AND RACKED-OUT AND LOCKED-OUT AND TAGGED-OUT.
b. START-UP GENERATORS FEEDING BUILDING 111 AND CLOSE TRANSITION TRANSFER ATS/2CR AUTOMATIC TRANSFER SWITCH TO GENERATOR POWER.
c. PERFORM PROCEDURE TO FEED 480V NORMAL SWITCHGEAR THROUGH TIE CIRCUIT BREAKER, LOCATED IN SG-1N.
d. OPENED AND RACKED-OUT EXISTING FEEDER CIRCUIT BREAKER, LOCK-OUT AND TAG-OUT.
e. REMOVE EXISTING 15 kV FEEDER FROM PRIMARY SIDE OF TRANSFORMER, TO THE EXISTING SWITCHGEAR.
f. TERMINATE NEW FEEDER FROM NEW BUILDING 115 ON PRIMARY SIDE OF TRANSFORMER IN BUILDING 111 AND IN NEW SWITCHGEAR.
g. PERFORM ACCEPTANCE TEST ON NEW FEEDER SECTION.
h. ENERGIZE FEEDER FROM NEW SWITCHGEAR.

11. BUILDING 111 TRANSFORMER #1 FEEDER OUTAGE
a. ENSURE THAT NEW ASSOCIATED CIRCUIT BREAKER HAS BEEN OPENED AND RACKED-OUT AND LOCKED-OUT AND TAGGED-OUT.
b. START-UP GENERATORS FEEDING BUILDING 111 AND CLOSE TRANSITION TRANSFER ATS/1LS AUTOMATIC TRANSFER SWITCH TO GENERATOR POWER.
c. PERFORM PROCEDURE TO FEED 480V NORMAL SWITCHGEAR THROUGH TIE CIRCUIT BREAKER, LOCATED IN SG-2N.
d. OPENED AND RACKED-OUT EXISTING FEEDER CIRCUIT BREAKER, LOCK-OUT AND TAG-OUT.
e. REMOVE EXISTING 15 kV FEEDER FROM PRIMARY SIDE OF TRANSFORMER, TO THE EXISTING SWITCHGEAR.
f. TERMINATE NEW FEEDER FROM NEW BUILDING 115 ON PRIMARY SIDE OF TRANSFORMER IN BUILDING 111 AND IN NEW SWITCHGEAR.
g. PERFORM ACCEPTANCE TEST ON NEW FEEDER SECTION.
h. ENERGIZE FEEDER FROM NEW SWITCHGEAR.

SYMBOLS LIST:

MOUNTING HEIGHTS FOR DEVICES AND EQUIPMENT TO BE MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICE.

LIGHTING:

- FLUORESCENT STRIP LIGHT
- 1a A — FIXTURE DESIGNATION (SEE SCHEDULE)
- CIRCUIT SWITCH LEG. NO DESIGNATION INDICATES PORTION OF CIRCUIT SWITCHED FROM UN-SWITCHED LEG OF CIRCUIT.
- CIRCUIT NUMBER
- EMERGENCY BATTERY POWER SPOT ILLUMINATION UNIT - DUAL HEAD LIGHT - WALL MOUNT 12" BELOW CEILING UNLESS NOTED OTHERWISE.
- K X — SINGLE POLE SWITCH - TOGGLE TYPE - MOUNT AT 44" AFF, UNLESS NOTED OTHERWISE
  - SWITCH DESIGNATION
  - SWITCH TYPE (3) 3 WAY (P) WITH PILOT LIGHT INDICATION
- P PHOTO-CONTROL

POWER:

- DUPLEX RECEPTACLE - MOUNTED 18" AFF UNLESS NOTED OTHERWISE
- XXX X — CIRCUIT NUMBER (SEE PLAN FOR PANEL BOUNDARIES) - TYPICAL RECEPTACLE TYPE OR EQUIPMENT SERVED. (GFI) GROUND FAULT INTERRUPTER (WP) WEATHERPROOF WITH GFI RECEPTACLE
- X — SPECIAL OUTLET- SEE SPECIAL OUTLET SCHEDULE
- X — MOTOR CONNECTION - SEE MOTOR WIRING SCHEDULE
- MOTOR STARTER
  - XXX — INDICATES TYPE (MAN) - MANUAL (MAG) - MAGNETIC (COM) - COMBINATION
- X — DISCONNECT SWITCH
- T1 / T2 — TRANSFORMER
- JUNCTION BOX
- XXX — LIGHTNING PROTECTION SYSTEM
  - DENOTES THE FOLLOWING: (ATH) AIR TERMINAL ROOF DECK (GRD) GROUND TO DOWN CONDUCTOR

SYSTEMS:

- S — SMOKE DETECTOR (PHOTO-ELECTRIC TYPE)
- H 135° — HEAT DETECTOR - RATE OF RISE
  - FIXED TEMP TYPE - TEMPERATURE THRESHOLD VALUE
- C.M. FIRE ALARM SYSTEM ADDRESSABLE CONTROL MODULE

GENERAL:

- A — ELECTRICAL PANEL - SEE SCHEDULE
- A — INDICATES DESIGNATION
- # — DRAWING NOTE SYMBOL
- (INDICATES DETAIL DESIGNATION)
- X / X — SEE DETAIL SYMBOL
- (INDICATES SHEET NUMBER)
- 6 — CONDUCTOR QUANTITY IN A RACEWAY. NUMBERS INDICATE WIRE SIZES (AWG).
  - INDICATES PHASE CONDUCTOR
  - INDICATES NEUTRAL CONDUCTOR
  - INDICATES GREEN GROUND CONDUCTOR
- ELEV. 70'-6" — MOUNTING HEIGHT TO CENTER LINE OF UNIT
- (#) FEEDER IDENTIFICATION

ABBREVIATIONS:

ABV	ABOVE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AVAILABLE INTERRUPTING CURRENT
ATS	AUTOMATIC TRANSFER SWITCH
BFG	BELOW FINAL GRADE
BLDG	BUILDING
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CT	CURRENT TRANSFORMER
ELEV	ELEVATION REFERENCE
EM	EMERGENCY
EMT	ELECTRIC METALLIC TUBING
FLA	FULL LOAD AMPS
GFI	GROUND FAULT INTERRUPTER
GRD	GROUND
HOA	HAND-OFF-AUTO SWITCH
HP	HORSEPOWER
HVAC	HEATING & VENTILATING - AIR CONDITIONING
LV	LOW VOLTAGE
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
PC	PHOTO CONTROL
R	RELAY
RM	ROOM
TCP	TEMPERATURE CONTROL PANEL
TYP	TYPICAL
WP	WEATHERPROOF
XFMR	TRANSFORMER

IN THE CASE OF CONFLICTS OR DISCREPANCIES WITHIN OR AMONG THE CONTRACT DRAWINGS, THE BETTER QUALITY, MORE STRINGENT REQUIREMENTS OR GREATER QUANTITY OF WORK, AS DETERMINED BY THE GOVERNMENT, SHALL BE PROVIDED.

SHEET INDEX:

CONSTRUCTION DOCUMENTS

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

THE SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER+LARSON ENGINEERING
GEIGER+LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GelgerEng.com

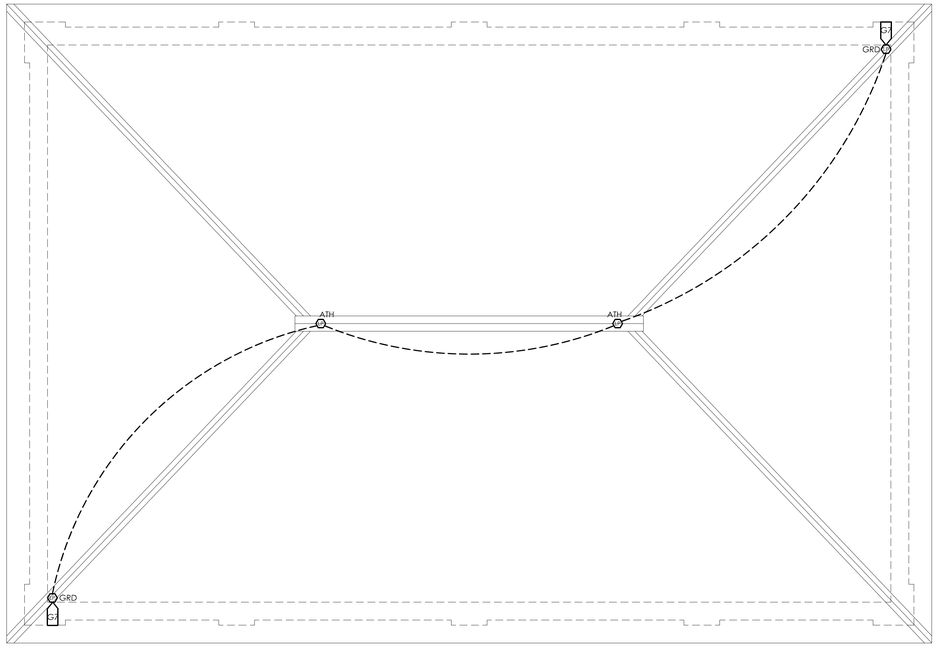
PROJECT LEADER/STRUCTURAL ENGINEER:

CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2002-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
1109 N. MAYFAIR RD., SUITE 208
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

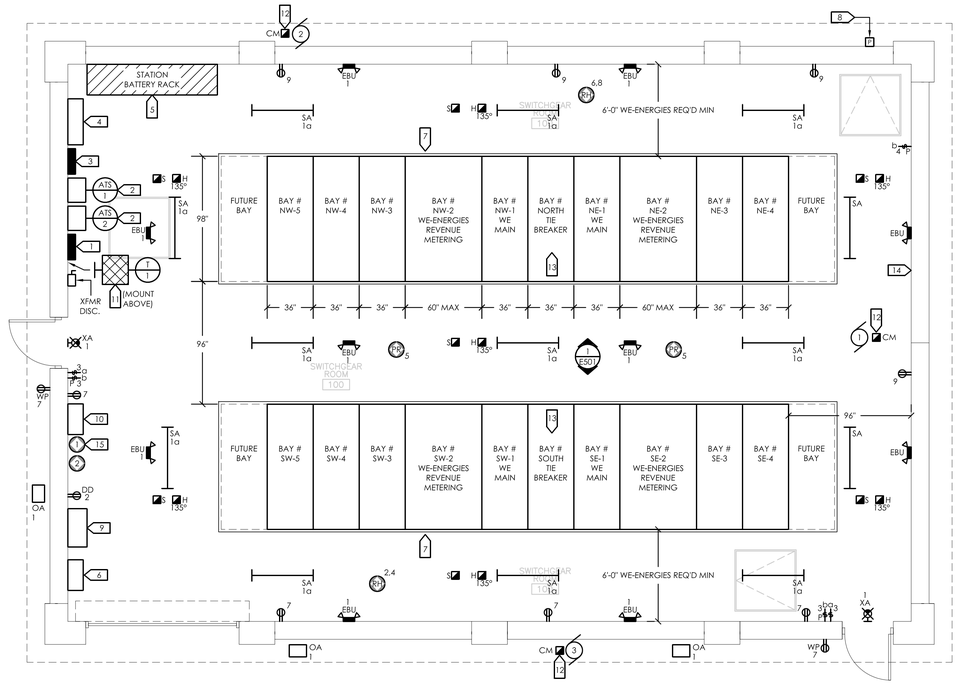
Drawing Title	ELECTRICAL SYMBOLS, ABBREVIATIONS & PHASING
Approved: Project Director	
Project Title	Replace Electrical Sub-Station
Location	VA Medical Center,Milwaukee, WI
Date	30 July 2012
Checked By:	G+L
Drawn By:	G+L
Project Number	695-12-118
Building Number	115
Drawing Number	E000

Office of Facilities Management
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978



ROOF PLAN–ELECTRICAL 3
SCALE: 1/4" = 1'-0"



GROUND LEVEL FLOOR PLAN–ELECTRICAL 1
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. EMERGENCY BATTERY UNITS SHALL BE WIRED TO UN-SWITCHED LEG OF ROOM LIGHTING CIRCUIT.
2. REFER TO LIGHTNING PROTECTION DETAILS ON SHEET E501.
3. FIRE ALARM SYSTEM SHALL BE AN EXTENSION OF THE EXISTING PYROTRONICS SYSTEM IN BUILDING 113. TIE INTO EXISTING CONTROL PANEL LOCATED IN BUILDING 113 MAIN SWITCHBOARD ROOM. PROVIDE ALL PROGRAMMING TO CREATE NEW ZONE FOR BUILDING 115.
4. STRUCTURAL BEAM LOCATIONS AND SWITCHGEAR LOCATION SHALL BE COORDINATE TO AVOID FEEDER ENTRY INTERFERENCES.

REFERENCED NOTES - FLOOR PLAN: <#>

1. PROVIDE 120/240VAC, BRANCH PANEL. REFER TO ONELINE DIAGRAM ON SHEET E701 FOR FEEDER INFORMATION.
2. REFER TO ONELINE DIAGRAM ON SHEET E701 AND SPECIFICATION SECTION 26 10 00 FOR AUTOMATIC TRANSFER SWITCH DETAILS.
3. PROVIDE 48VDC DISTRIBUTION PANEL. REFER TO ONELINE DIAGRAM ON SHEET E701 AND SPECIFICATION SECTION 26 10 00.
4. PROVIDE BATTERY CHARGER AS SPECIFIED ON ONELINE DIAGRAM ON SHEET E701 AND IN SPECIFICATION SECTION 26 10 00.
5. PROVIDE TWO (2) TIER STATION BATTERY RACK AS SPECIFIED IN SECTION 26 10 00.
6. PROVIDE CIRCUIT BREAKER TESTING STATION AS SPECIFIED IN SECTION 26 10 00.
7. PROVIDE 3-1/2" HIGH CONCRETE EQUIPMENT PAD AROUND THE PERIMETER OF THE SWITCHGEAR - PAINT PERIMETER TOP AND SIDE EDGE OF PAD WITH YELLOW PAINT.
8. PROVIDE DUSK-TO-DAWN PHOTOCELL MOUNTED ON NORTH SIDE OF BUILDING, WIRE TO CONTROL OUTDOOR FIXTURES "TYPE OA" MOUNTED IN SOFFIT.
9. PROVIDE MOVEABLE SPARE PARTS STORAGE CABINET. REFER TO SPECIFICATION 26 10 00.
10. PROVIDE ENCLOSURE FOR AUTOMATIC TRANSFER CONTROL PLC'S. REFER TO SPECIFICATION 26 10 00.
11. PROVIDE TRANSFORMER MOUNTED ABOVE PANEL BOARDS. MOUNT SECURELY TO WALL/STRUCTURE.
12. WIRE CONTROL MODULE TO HVAC EQUIPMENT CONTACT POINT - UPON INITIATION OF SMOKE DETECTOR, CONTROL MODULE SHALL SHUT DOWN ALL HVAC EQUIPMENT.
13. ALL 120/240 VAC AND 48 VDC CONTROL POWER CIRCUITS SHALL ENTER TIE BAY AUXILIARY CUBE.
14. PROVIDE HOOKS MOUNTED ON WALL TO FACILITATE HANGING OF GROUNDING CABLES. REFER TO SPECIFICATION 26 10 00.
15. PROVIDE DIRECT DIGITAL CONTROLLER (DDC) AS AN EXTENSION TO THE EXISTING JCI METASYS SYSTEM. REFER TO ALARM AND MONITOR POINTS LIST ON SHEET E/601.

REFERENCED NOTES - GROUNDING PLAN: <G#>

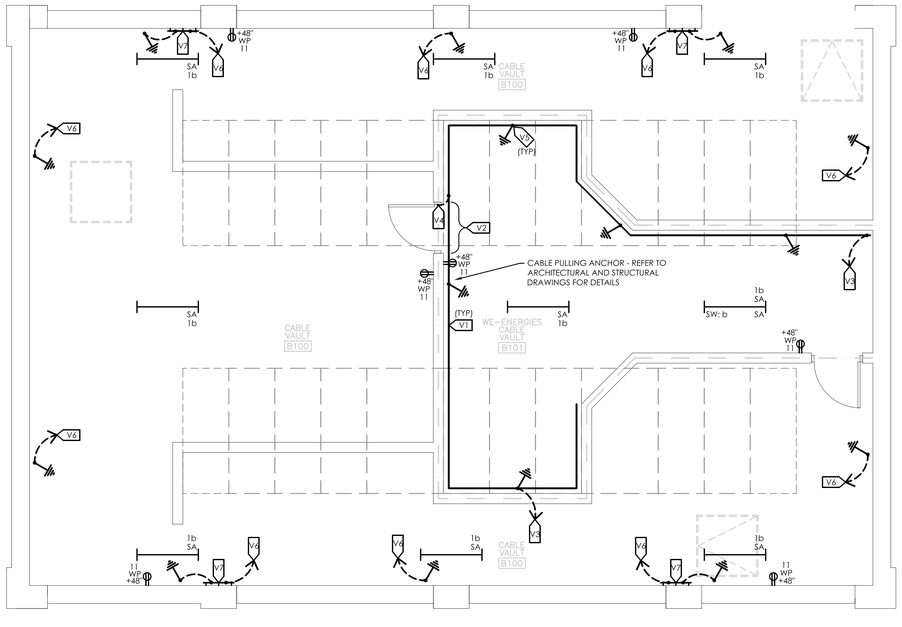
G1. PROVIDE 1/4" X 2" COPPER GROUND BAR ALONG ALL INSIDE WALLS TO FORM CLOSED LOOP. MOUNT ON INSULATED STAND-OFFS AT 12" AFF. PROVIDE THREE (3) STAND-OFFS PER 12'-0" LENGTH OF COOPER BAR.
G2. ROUTE COPPER GROUND BAR AROUND AND ABOVE DOOR FRAME.
G3. ROUTE COPPER GROUND BAR AROUND AND ABOVE ROLL-UP DOOR.
G4. PROVIDE BOND WITH #6 AWG CONDUCTOR FROM FLOOR ACCESS DOOR FRAME TO PERIMETER COPPER GROUND BAR AT EACH DOOR LOCATION.
G5. PROVIDE BOND FROM PERIMETER COPPER GROUND BAR TO STRUCTURAL STEEL BEAM BENEATH FLOOR AT LOCATIONS INDICATED WITH #3/0 BARE COPPER CONDUCTOR.
G6. PROVIDE BOND WITH #6 AWG CONDUCTOR FROM DOOR FRAME TO PERIMETER COPPER GROUND BAR AT EACH DOOR LOCATION.
G7. PROVIDE BOND FROM DOWN CONDUCTOR OF LIGHTNING PROTECTION SYSTEM TO PERIMETER COPPER GROUND BAR.
G8. PROVIDE #4/0 BARE COOPER CONDUCTOR ROUTED IN SCHEDULE 40 PVC CONDUIT. ATTACH FROM PERIMETER COPPER GROUND BAR TO CONTINUOUS GROUND BAR INSIDE SWITCHGEAR.
G9. PROVIDE #1/0 BARE COOPER CONDUCTOR, 12" BELOW GRADE AND 18" AROUND OUTSIDE OF PERIMETER OF DOOR AS INDICATED.
G10. ROUTE COPPER GROUND BAR AROUND AND ABOVE STATION BATTERY.
G11. PROVIDE #4/0 BARE COPPER CONDUCTED IN CONCRETE FLOOR AS INDICATED 18" IN FRONT AND BACK AND 54" TO EACH SIDE OF SWITCHGEAR.

REFERENCED NOTES - CABLE VAULT PLAN: <V#>

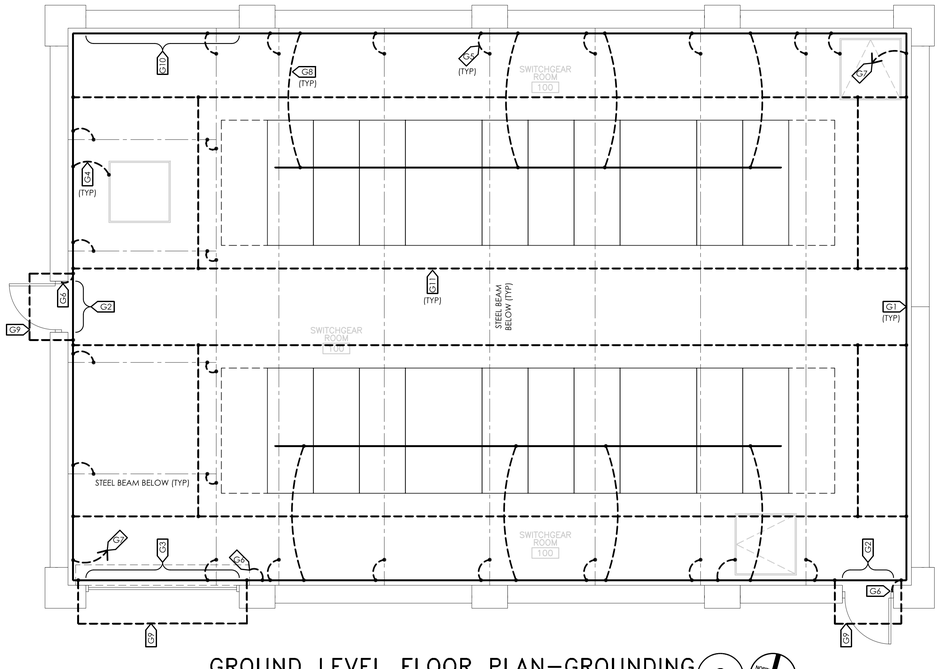
V1. PROVIDE 1/4" X 2" COPPER GROUND BAR ALONG WALLS AS SHOWN. MOUNT ON INSULATED STAND-OFFS AT 12" AFF. PROVIDE THREE (3) STAND-OFFS PER 12'-0" LENGTH OF COOPER BAR.
V2. ROUTE COPPER GROUND BAR AROUND AND ABOVE DOOR FRAME.
V3. PROVIDE #4/0 BARE COOPER CONDUCTOR ROUTED IN 3/4" SCHEDULE 40 PVC CONDUIT. ATTACH TO PERIMETER COPPER GROUND BAR ON FLOOR ABOVE.
V4. PROVIDE BOND WITH #6 AWG CONDUCTOR FROM DOOR FRAME TO COPPER GROUND BAR AT EACH DOOR LOCATION.
V5. PROVIDE 3/4" X 20'-0" COPPER-CLAD GROUND ROD AND CONNECT TO COOPER GROUND BAR.
V6. PROVIDE 3/4" X 20'-0" COPPER-CLAD GROUND ROD AND CONNECT TO PERIMETER COOPER GROUND BAR ABOVE WITH #4/0 BARE COPPER CONDUCTOR IN 3/4" SCHEDULE 40 PVC CONDUIT.
V7. PROVIDE 1/4" x 2" x 24" COPPER GROUND BAR MOUNTED 36" AFF ON 2" INSULATED STAND-OFFS.

LIGHT FIXTURE SCHEDULE:

TYPE	DESCRIPTION
OA	RECESSED SOFFIT MOUNTED EXTERIOR LED FIXTURE. EQUAL TO BETA LED - SFT-227-3M-RM-03-D-12-WH-525-57K
SA	SURFACE MOUNTED INDUSTRIAL VAPORTITE 48" FLUORESCENT FIXTURE. PROVIDE WITH (2) F32T8 FLUORESCENT LAMPS, CRI: +80 & 4100°K. EQUAL TO METALUX - VT2-2-32-DR-120V-EB81
EBU	INCANDESCENT EMERGENCY LIGHTING UNIT. EQUAL TO SURE-LITES - CC5-WH-120
XA	RED LED, WHITE THERMOPLASTIC, SINGLE FACE, SURFACE MOUNTED EXIT SIGN. EQUAL TO SURE-LITES - LPX SERIES



CABLE VAULT PLAN–ELECTRICAL 4
SCALE: 1/4" = 1'-0"



GROUND LEVEL FLOOR PLAN–GROUNDING 2
SCALE: 1/4" = 1'-0"

CONSTRUCTION DOCUMENTS

Revisions: | Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

THE SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER+LARSON ENGINEERING
GEIGER+LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GelgerEng.com

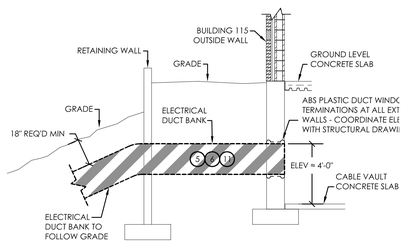
PROJECT LEADER/STRUCTURAL ENGINEER:

CHEQUAMEGON BAY ENGINEERING, INC.
CBE 2003-2015
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6035
MILWAUKEE, WI
1109 N. MAYFAIR RD., SUITE 208
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

Drawing Title: ELECTRICAL FLOOR PLANS
Approved: Project Director
Project Title: Replace Electrical Sub-Station
Location: VA Medical Center,Milwaukee, WI
Date: 30 July 2012
Checked By: G+L
Drawn By: G+L
Project Number: 695-12-118
Building Number: 115
Drawing Number: E100

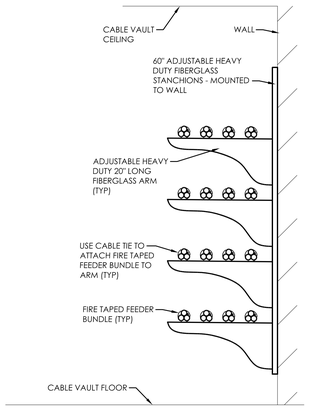
Office of Facilities Management
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978



NORTH ELEVATION OF B113 & 'HVS–A' DUCT BANK ROUTE 5

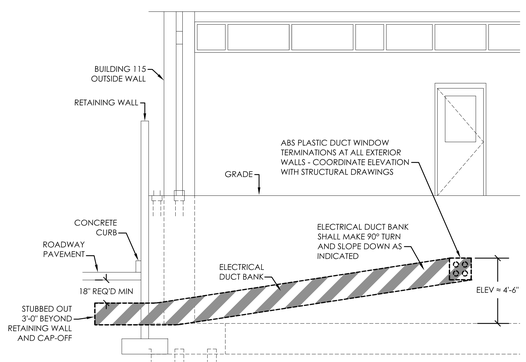
NO SCALE



NOTE:
1. PROVIDE FIBERGLASS VERTICAL STANCHIONS AND ARM SUPPORTS AT MAXIMUM SPACING OF 5'-0". REFER TO CABLE MANUFACTURE'S RECOMMENDED SUPPORT REQUIREMENTS.
2. FASTEN TO WALL WITH STAINLESS STEEL HARDWARE.

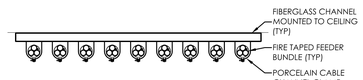
MEDIUM VOLTAGE CABLE RACK DETAIL 3

NO SCALE



WEST ELEVATION OF SPARE DUCT BANK ROUTE TO NORTH 6

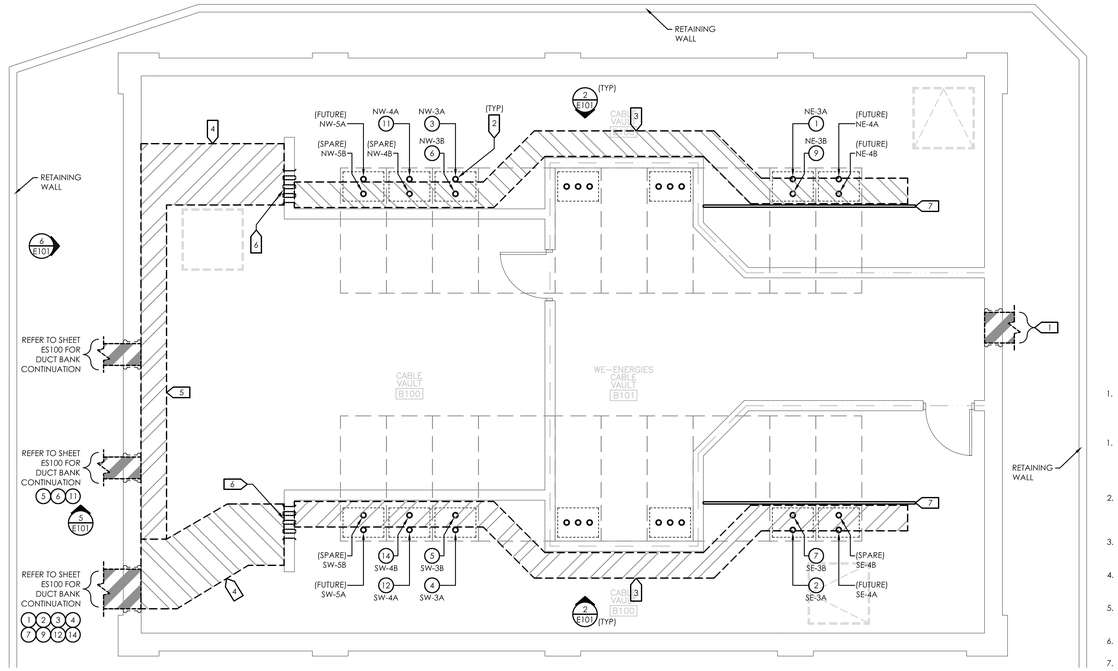
NO SCALE



NOTE:
1. PROVIDE FIBERGLASS CHANNEL AND PORCELAIN CLAMP SUPPORTS AT MAXIMUM SPACING OF 5'-0". REFER TO CABLE MANUFACTURE'S RECOMMENDED SUPPORT REQUIREMENTS.
2. FASTEN TO CEILING WITH STAINLESS STEEL HARDWARE.

MEDIUM VOLTAGE CABLE SUPPORT DETAIL 4

NO SCALE



CABLE VAULT FLOOR PLAN – CABLE ROUTE 1

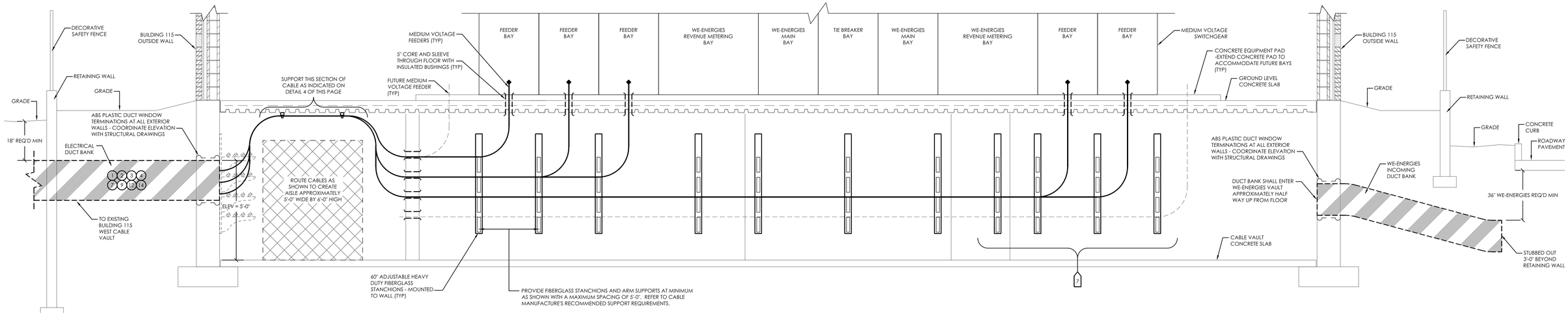
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. COORDINATE ELEVATION OF ELECTRICAL DUCT BANK ENTRIES INTO BUILDING WITH STRUCTURAL AND CIVIL DRAWINGS.

REFERENCED NOTES: ⟨#⟩

1. PROVIDE SIX (6) 5" SCHEDULE 80 PVC CONDUITS IN 2 x 3 DUCT ARRANGEMENT FOR UTILITY INCOMING FEEDERS. EXTEND CONDUITS 3'-0" BEYOND RETAINING WALL. COORDINATE CONDUIT TYPE, SIZE, ARRANGEMENT AND LOCATION WITH WE-ENERGIES PRIOR TO INSTALLATION. REFER TO ELEVATION 2/E101 AND DETAIL 8/ES100.
2. PROVIDE 5" CORE WITH SLEEVE AND INSULATED BUSHING AT EACH LOCATION INDICATED. COORDINATE CORE LOCATIONS WITH SWITCHGEAR MANUFACTURES SHOP DRAWINGS TO ASSURE CABLE CHIMNEYS FOR UPPER CIRCUIT BREAKER CUBICLES ALINE.
3. HATCHED AREA INDICATES RECOMMENDED FEEDER ROUTE. PROVIDE WALL MOUNTED HEAVY DUTY NON-METALLIC CABLE RACK SYSTEM. REFER TO ELEVATION 2/E101 AND DETAIL 3/E101.
4. HATCHED AREA INDICATES RECOMMENDED FEEDER ROUTE. PROVIDE 1-5/8" HEAVY DUTY FIBERGLASS CHANNEL MOUNTED TO CEILING WITH PORCELAIN CABLE CLAMP. REFER TO CABLE SUPPORT DETAIL 4/E101.
5. HATCHED AREA INDICATES RECOMMENDED FEEDER ROUTE. PROVIDE WALL MOUNTED HEAVY DUTY NON-METALLIC CABLE RACK SYSTEM. REFER TO CABLE RACK DETAIL 3/E101.
6. PROVIDE SIXTEEN (16) 5" SLEEVES WITH BELL ENDS IN A 4 x 4 ARRANGEMENT, TO MATCH UP WITH CABLE RACK SYSTEM LAYOUT.
7. PROVIDE 1-5/8" HEAVY DUTY FIBERGLASS CHANNEL ASSEMBLY FLOOR TO CEILING OF CABLE VAULT TO ACCOMMODATE ATTACHMENT OF CABLE RACK SYSTEM.



MEDIUM VOLTAGE FEEDER SUPPORT TYPICAL NORTH & SOUTH ELEVATION 2

SCALE: 1/4" = 1'-0"

CONSTRUCTION DOCUMENTS

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

THE SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

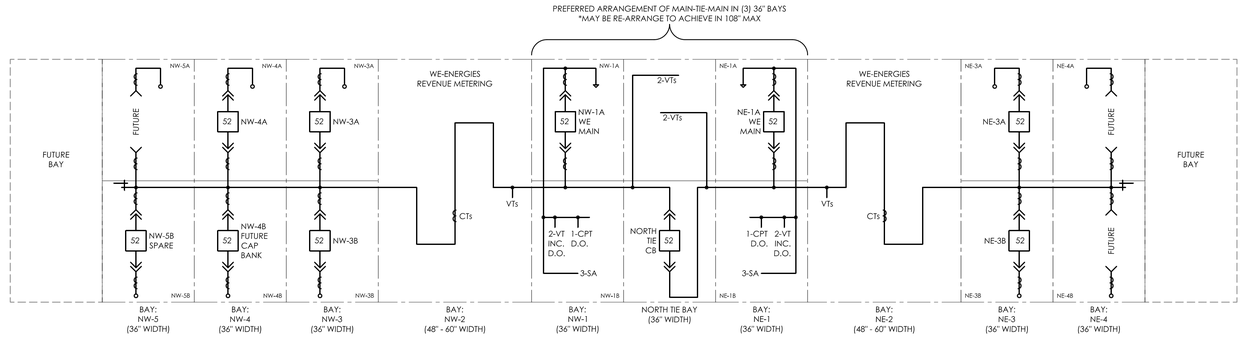
GEIGER+LARSON ENGINEERING
GEIGER+LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

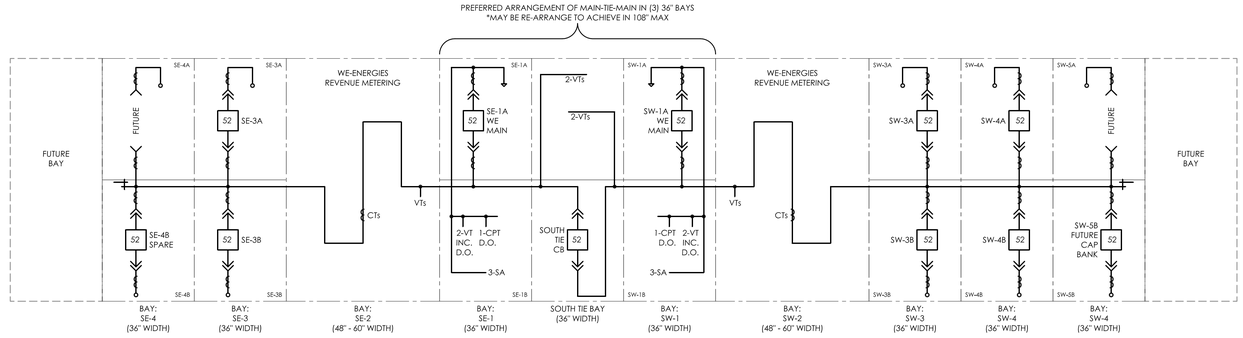
CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2002-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
1109 N. MAYFAIR RD., SUITE 208
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

Drawing Title: ELECTRICAL CABLE VAULT - CABLE ROUTING	Project Title: Replace Electrical Sub-Station
Approved: Project Director	Location: VA Medical Center,Milwaukee, WI
Date: 30 July 2012	Checked By: G+L / Drawn By: G+L
Project Number: 695-12-118	Building Number: 115
Drawing Number: E101	Office of Facilities Management — Department of Veterans Affairs

VA FORM 08–6231, OCT 1978



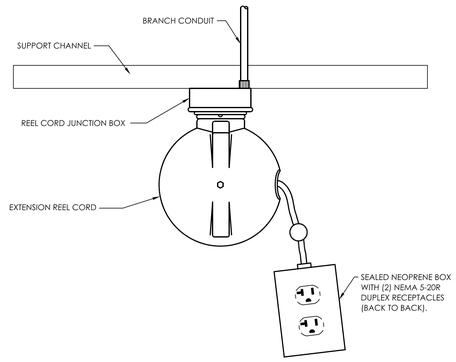
NORTH LINE-UP



SOUTH LINE-UP

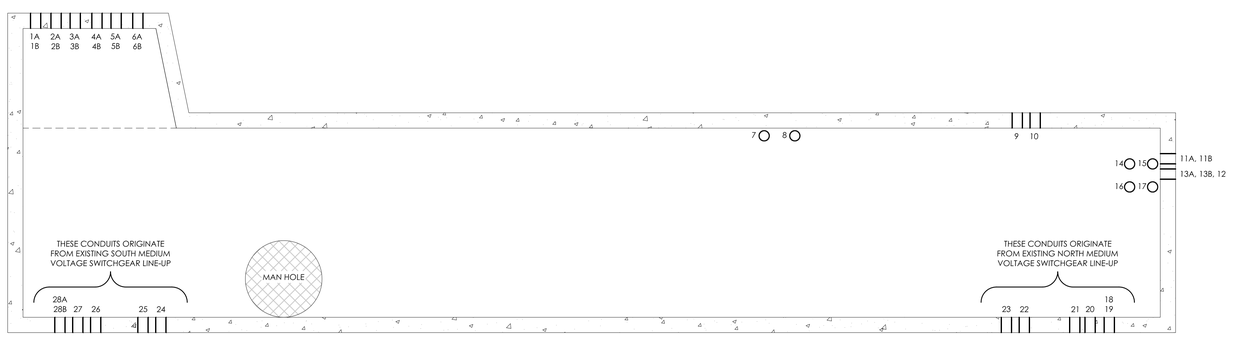
MV SWITCHGEAR FRONT VIEW 1

SCALE: 1/2" = 1'-0"



PULL-DOWN RECEPTACLE DETAIL 5

NO SCALE

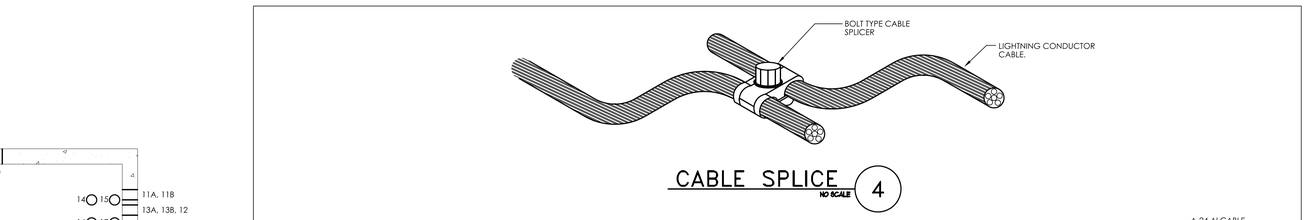


CONDUIT LEGEND:

1A	S-5: 13.2kV, BLDG 111 - XFMR #1	6A	S-6: 13.2kV, BLDG 111 - XFMR #3	13B	NO I.D. ON CABLE
1B	OPEN	6B	N-9: 13.2kV, BLDG 70 C & WINGS	14	NO I.D. ON CABLE
2A	N-5: 13.2kV, BLDG 111 - XFMR #2	7	5" CORE IN FLOOR	15	N-7: 13.2kV, SWITCH HVS-A (NORTH CAMPUS) CKT A TO MH-K
2B	OPEN	8	5" CORE IN FLOOR	16	OPEN
3A	OPEN	9	S-11: 13.2kV, BLDG 113 - XFMR #2	17	OPEN
3B	N-8: 13.2kV, BLDG 70 A/B & D WINGS	10	N-11: 13.2kV, BLDG 113 - XFMR #1 (EAST)	18	N-11: 13.2kV, BLDG 113 - XFMR #1 (EAST)
4A	N-6: 13.2kV, BLDG 111 - XFMR #4	11A	OPEN	19	N-9: 13.2kV, BLDG 70 C & E WINGS
4B	S-7: 13.2kV, BLDG 144 (SCI)	11B	NO I.D. ON CABLE	20	N-8: 13.2kV, BLDG 70 A/B& D WINGS
5A	OPEN	12	OPEN	21	N-7: 13.2kV, SWITCH HVS-A (NORTH CAMPUS)
5B	S-9: 13.2kV, BLDG 123 (DORM)	13A	N-7: 13.2kV, SWITCH HVS-A (NORTH CAMPUS) CKT A TO MH-K	22	N-6: 13.2kV, BLDG 111 - XFMR #4
				23	N-5: 13.2kV, BLDG 111 - XFMR #2
				24	S-5: 13.2kV, BLDG 111 - XFMR #1
				25	S-6: 13.2kV, BLDG 111 - XFMR #3
				26	S-7: 13.2kV, BLDG 144 (SCI)
				27	S-8: DISCONNECTED CABLES FROM CAPACITOR BANK
				28A	S-11: 13.2kV, BLDG 113 - XFMR #2
				28B	S-9: 13.2kV, BLDG 123 (DORM)

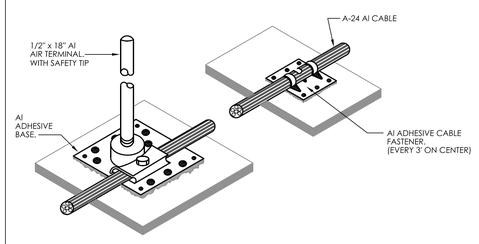
EXISTING BUILDING 115 WEST CABLE VAULT LAYOUT 6

SCALE: 1/2" = 1'-0"



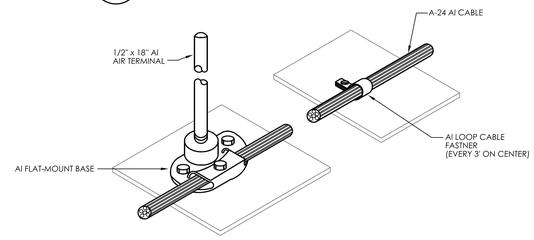
CABLE SPLICE 4

NO SCALE



ADHESIVE AIR TERMINAL 3

NO SCALE



EQUIPMENT AIR TERMINAL 2

NO SCALE

LIGHTNING PROTECTION DETAILS

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

THE SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER+LARSON ENGINEERING
GEIGER+LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GelgerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2002-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6035
MILWAUKEE, WI
1109 N. MAYFAIR RD., SUITE 208
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

CONSTRUCTION DOCUMENTS

Drawing Title	ELECTRICAL DETAILS
Approved: Project Director	
Project Title	Replace Electrical Sub-Station
Location	VA Medical Center,Milwaukee, WI
Date	30 July 2012
Checked By:	G+L
Drawn By:	G+L
Project Number	695-12-118
Building Number	115
Drawing Number	E501

Office of Facilities Management
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978

ALARM & MONITOR POINTS LIST

LOCATION	POINT DESCRIPTION	GRAPHICS DDC (JCI)	POWER XPERT (EATON)	NO. OF POINTS
MAIN BKRS #NW-1; NE-1; SE-1; SW-1	BKR OPEN/CLOSED		REFER TO NOTE 3	
BUS DIFF TRIP 87/86-NW; NE; SE; SW	BUS DIFFERENTIAL RELAY TRIP	X	REFER TO NOTE 3	4
MAIN BKRS #NW-1; NE-1; SE-1; - LOSS OF WE ENERGIES (27, 47, AND/OR 59)	LOSS OF WE EN. TRIGGER ATS.	X	REFER TO NOTE 3	4
MAIN BKRS #NW-1; NE-1; SE-1; SW-1	RELAY TRIP	X	REFER TO NOTE 3	4
MAIN BKRS #NW-1; NE-1; SE-1; SW-1	RELAY FAILURE	X	REFER TO NOTE 3	4
TIE BKRS NWINE AND SE/SW	BKR OPEN/CLOSED		REFER TO NOTE 3	
FEEDERS #NW-4A; NE-3A; NW-3B; NE-3A; NE-3B; SE-3A; SE-3B; SW-3A; SW-3B; SW-4A; SW-4B	BKR OPEN/CLOSED		REFER TO NOTE 3	
FEEDERS #NW-4A; NE-3A; NW-3B; NE-3A; NE-3B; SE-3A; SE-3B; SW-3A; SW-3B; SW-4A; SW-4B	RELAY TRIP	X	REFER TO NOTE 3	11
FEEDERS #NW-4A; NE-3A; NW-3B; NE-3A; NE-3B; SE-3A; SE-3B; SW-3A; SW-3B; SW-4A; SW-4B	RELAY FAILURE	X	REFER TO NOTE 3	11
SPARE FEEDERS #NW-5B; SE-4B	BKR OPEN/CLOSED		REFER TO NOTE 3	
SPARE FEEDERS #NW-5B; SE-4B	RELAY TRIP	X	REFER TO NOTE 3	2
SPARE FEEDERS #NW-5B; SE-4B	RELAY FAILURE	X	REFER TO NOTE 3	2
FUTURE CAPACITOR FEEDERS #NW-4B; SW-5B	BKR OPEN/CLOSED		REFER TO NOTE 3	
FUTURE CAPACITOR FEEDERS #NW-4B; SW-5B	RELAY TRIP	X	REFER TO NOTE 3	2
FUTURE CAPACITOR FEEDERS #NW-4B; SW-5B	RELAY FAILURE	X	REFER TO NOTE 3	2
FUTURE FEEDERS #NW-5A; NE-4A; NE-4B; SE-4A; SW-5A	BKR OPEN/CLOSED		REFER TO NOTE 3	
FUTURE FEEDERS #NW-5A; NE-4A; NE-4B; SE-4A; SW-5A	RELAY TRIP	X	REFER TO NOTE 3	5
FUTURE FEEDERS #NW-5A; NE-4A; NE-4B; SE-4A; SW-5A	RELAY FAILURE	X	REFER TO NOTE 3	5
DAISY CHAIN RELAYS (TO BE CONNECTED TO THE EATON "POWER XPERT" SYSTEM)	MODBUS RS-485 OR ETHERNET TCP		X	DIGITAL SIGNAL
DAISY CHAIN METERS (TO BE CONNECTED TO THE EATON "POWER XPERT" SYSTEM)	MODBUS RS-485 OR ETHERNET TCP		X	DIGITAL SIGNAL
ATS PLC SYSTEM	SYSTEM NORMAL AND ACTIVE		X	1
	SYSTEM NORMAL AND OFF		X	1
	SYSTEM TRANSFERRED		X	1
	ERROR IN SYSTEM TRANSFER		X	1
	2ND STAGE TRANSFER ENABLED		X	1
	2ND STAGE TRANSFER DISABLED		X	1
	2ND STAGE TRANSFER IN 20-MINUTES		X	1
	PLC FAILURE		X	1
	GENERAL ALARM	X		1
CONTROL HOUSE	HIGH TEMPERATURE	X		1
	LOW TEMPERATURE	X		1
	WATER IN BASEMENT	X		1
AC CONTROL POWER AUTO. TRANSFER SWITCHES	ON BACK-UP AC SUPPLY		X	1
48 VDC BATTERY CHARGER	LOSS OF AC SUPPLY		X	1
	LOW DC		X	1
	HIGH DC		X	1
	DC FAILURE		X	1
	DC SYSTEM GROUND		X	1
	GENERAL ALARM	X		1

NOTES:
1. VERFIY ALARM SET POINTS WITH RESIDENT ENGINEER.
2. UPDATE AND OR CREATE PROGRAM AND GRAPHICAL USER INTERFACE.
3. EACH CIRCUIT BREAKER PROTECTIVE RELAY SHALL DIGITALLY COMMUNICATE THIS ALARM OVER THE DAISY CHAINED COMMUNICATION SYSTEM TO THE POWER XPERT GATEWAY.

PANELBOARD SCHEDULE
AC DISTRIBUTION PANEL

LOCATION: BUILDING 115

CKT #	CB AMPS	P	CIRCUIT DESCRIPTION	CKT #	CB AMPS	P	CIRCUIT DESCRIPTION
1	20	1	INDOOR OUTDOOR LIGHTING	2	20	2	ELECTRIC RADIANT HEATING
3	20	1	DATA RACK RECEPTACLE	4			
5	20	1	PULL-DOWN RECEPTACLES	6	20	2	ELECTRIC RADIANT HEATING
7	20	1	CONVIENCE RECEPTACLES 1ST FLOOR	8			
9	20	1	CONVIENCE RECEPTACLES 1ST FLOOR	10	15	2	CIRCULATION FAN (CF-1)
11	20	1	CONVIENCE RECEPTACLES CABLE VAULT	12			
13	20	1	DIRECT DIGITAL CONTROLLER	14	100	2	AC-1
15	20	1	SECURITY CARD ACCESS	16			
17	100	2	BATTERY CHARGER	18	100	2	AC-2
19				20			
21	20	2	SWITCHGEAR CUBICLE HEATER	22	20	2	SWITCHGEAR CUBICLE HEATER
23				24			
25	20	2	SWITCHGEAR CUBICLE HEATER	26	20	2	SWITCHGEAR CUBICLE HEATER
27				28			
29	20	2	SWITCHGEAR CUBICLE HEATER	30	20	2	SWITCHGEAR CUBICLE HEATER
31				32			
33	20	2	SWITCHGEAR CUBICLE HEATER	34	20	2	SWITCHGEAR CUBICLE HEATER
35				36			
37	20	2	SWITCHGEAR CUBICLE HEATER	38	20	2	SWITCHGEAR CUBICLE HEATER
39				40			
41	20	2	SWITCHGEAR CUBICLE HEATER	42	20	2	SWITCHGEAR CUBICLE HEATER
43				44			
45	20	2	SWITCHGEAR CUBICLE HEATER	46	20	2	SWITCHGEAR CUBICLE HEATER
47				48			
49	20	2	SWITCHGEAR CUBICLE HEATER	50	20	2	SWITCHGEAR CUBICLE HEATER
51				52			
53	20	2	SWITCHGEAR CUBICLE HEATER - FUTURE	54	20	2	SWITCHGEAR CUBICLE HEATER - FUTURE
55				56			
57	20	2	SWITCHGEAR CUBICLE HEATER - FUTURE	58	20	2	SWITCHGEAR CUBICLE HEATER - FUTURE
59				60			
61	20	1	SPARE	62	20	1	SPARE
63	20	1	SPARE	64	20	1	SPARE
65	20	1	SPARE	66	20	1	SPARE
67	20	1	SPARE	68	20	1	SPARE
69	20	1	SPARE	70	20	1	SPARE
71	20	1	SPARE	72	20	1	SPARE
73	20	1	SPARE	74	20	1	SPARE
75	20	1	SPARE	76	20	1	SPARE
77	-	1	SPACE	78	-	1	SPACE
79	-	1	SPACE	80	-	1	SPACE
81	-	1	SPACE	82	-	1	SPACE
83	-	1	SPACE	84	-	1	SPACE

VOLTAGE: **240/120 VAC**	BUSSING: **225 A, MCB**
AMPS: **225 A**	PANEL TYPE: **BRANCH**
# OF TUBS: **1**	MOUNTING: **SURFACE**
CKTS/TUB: **84**	

NOTES:
1. ALL LOADS SERVED BY 20 AMP CIRCUIT BREAKERS SHALL BE #12 Cu MINIMUM IN 3/4" C UNLESS OTHERWISE SPECIFIED.

PANELBOARD SCHEDULE
DC DISTRIBUTION PANEL

LOCATION: BUILDING 115

CKT #	CB AMPS	P	CIRCUIT DESCRIPTION	LOAD TYPE: CB TRIP, RELAY & LIGHT	LOAD TYPE: CB CLOSE & LIGHT	LOAD TYPE: SPRING CHARGING MOTOR & METER	LOAD TYPE: MISC	CKT #	CB AMPS	P	CIRCUIT DESCRIPTION	LOAD TYPE: CB TRIP, RELAY & LIGHT	LOAD TYPE: CB CLOSE & LIGHT	LOAD TYPE: SPRING CHARGING MOTOR & METER	LOAD TYPE: MISC
1	30	2	NW-1	X				2	30	2	NE-1	X			
3								4							
5	30	2	NORTH TIE	X				6	30	2	NE-1		X		
7								8							
9	30	2	NW-1		X			10	30	2	NE-3,4A	X	X		
11								12							
13	30	2	NORTH TIE		X			14	30	2	NE-3,4B	X	X		
15								16							
17	30	2	NW-3,4,5A	X	X			18	30	2	NE-1 & 3,4A			X	
19								20							
21	30	2	NW-3,4,5B	X	X			22	30	2	NORTH TIE, NE-3,4B			X	
23								24							
25	30	2	NORTH TIE, NW-1, 3, 4, 5A			X		26	20	2	ATS-PLC-2				X
27								28							
29	30	2	NW-3,4,5B			X		30	20	2	TEST CABINET				X
31								32							
33	20	2	ATS-PLC-1				X	34	30	2	SE-1	X			
35								36							
37	30	2	SW-1	X				38	30	2	SE-1		X		
39								40							
41	30	2	SOUTH TIE	X				42	30	2	SE-3,4,5A	X	X		
43								44							
45	30	2	SW-1		X			46	30	2	SE-3,4,5B	X	X		
47								48							
49	30	2	SOUTH TIE		X			50	30	2	SE-1 & 3,4A			X	
51								52							
53	30	2	SW-3,4,5A	X	X			54	30	2	SE-3,4B			X	
55								56							
57	30	2	SW-3,4,5B	X	X			58	20	2	SPARE				
59								60							
61	30	2	SW-1 & 3,4,5A			X		62	20	2	SPARE				
63								64							
65	30	2	SOUTH TIE SW-3,4,5B			X		66	30	2	SPARE				
67								68							
69	20	2	SPARE					70	30	2	SPARE				
71								72							
73	20	2	SPARE					74	30	2	SPARE				
75								76							
77	20	2	SPARE					78	30	2	SPARE				
79								80							
81	20	2	SPARE					82	30	2	SPARE				
83								84							

VOLTAGE: **48 VDC**	AMPS: **70 A**	CKTS/TUB: **84**	# OF TUBS: **1**	BUSSING: **100A, MCB**	PANEL TYPE: **BRANCH**	MOUNTING: **SURFACE**

NOTES:
1. ALL LOADS SERVED BY 20 AMP CIRCUIT BREAKERS SHALL BE #12 Cu MINIMUM IN 3/4" C.
2. ALL LOADS SERVED BY 30 AMP CIRCUIT BREAKERS SHALL BE #10 CU MINIMUM IN 3/4" C.

SPECIAL OUTLET SCHEDULE

NO.	SERVING	LOC.	VOLT	PHASE	LOAD	FEED FROM: PANEL	FEED FROM: CIRCUIT	FEED FROM: BRANCH	OCPD BRANCH WIRING: SIZE	POLE	NO.	SIZE	COND	GRD SIZE	CONNECTION REQUIREMENTS: OPTIONS	NEMA TYPE	MTG HEIGHT	SEE NOTE
1	DIRECT DIGITAL CONTROLLER (DDC)	B115	120	1	500	AC	13	LS	20	1	2	12	3/4	12	3			
2	SECURITY CARD ACCESS PANEL	B115	120	1	500	AC	15	LS	20	1	2	12	3/4	12	3			
RH	ELECTRIC RADIANT HEATER	B115	240	1	4000	AC	SFP	LS	20	2	2	12	3/4	12	3			
PR	PULL-DOWN RECEPTACLE	B115	120	1	500	AC	SFP	LS	20	1	2	12	3/4	12	3			1

ABBREVIATIONS:
N = NORMAL BRANCH
LS = LIFE SAFETY BRANCH
CR = CRITICAL CARE BRANCH
EQ = EQUIPMENT SYSTEM
EM = EMERGENCY SYSTEM
ES = ESSENTIAL SYSTEM
CB = AMPERE RATED CIRCUIT BREAKER
S = AMPERE RATED SWITCH
F = AMPERE RATED FUSES
OCPD = OVERCURRENT PROTECTIVE DEVICE
SFP = SEE FLOOR PLAN
SA = SEE ARCHITECTURAL DETAILS

OPTIONS:
1 = SINGLE RECEPTACLE
2 = DUPLEX RECEPTACLE
3 = DIRECT CONNECTION
4 = NON FUSIBLE DISCONNECT
5 = FUSIBLE DISCONNECT
6 = WEATHERPROOF
7 = LOCKABLE
8 = CONCEALED
9 = TOGGLE SWITCH
10 = VERIFY WITH MANUFACTURER PRIOR TO INSTALLATION
11 = SURFACE MOUNTED
12 = FLUSH MOUNTED
13 = GFI RECEPTACLE
14 = FED FROM UPSTREAM GFI BREAKER

SPECIAL OUTLET SCHEDULE NOTES:
1. REFER TO DETAIL 5/E501 FOR PULL-DOWN RECEPTACLE DETAILS.

MOTOR WIRING SCHEDULE

NO.	SERVING	LOC.	VOLT	PHASE	HP	FLA	FEED FROM: PANEL	FEED FROM: CKT	FEED FROM: BRANCH	OCPD: TYPE	OCPD: SIZE	OCPD: POLE	BRANCH WIRING: NO.	SIZE	GRD (Y/N)	COND	GRD SIZE	MOTOR CONTROLLER: FURN BY	INST BY	WIRE BY	LOC.	TYPE	OPTIONS	DISCONNECT SWITCH: FURN BY	INST BY	WIRE BY	LOC.	OPTIONS	SEE NOTE
1	CIRCULATION FAN (CF-1)	B115	120	1	1/3	7.2	AC	10,12	LS	CB	20	1	2	12	Y	3/4	12	MFR	MFR	EC	IU	CS		EC	EC	EC	NU		
2	AC-1	B115	240	1	3	50	AC	14,16	LS	CB	100	2	2	6	Y	1	6	MFR	MFR	EC	IU	CS		EC	EC	EC	NU		
3	AC-2	B115	240	1	3	50	AC	18,20	LS	CB	100	2	2	6	Y	1	6	MFR	MFR	EC	IU	CS		EC	EC	EC	NU		

ABBREVIATIONS:
N = NORMAL BRANCH
LS = LIFE SAFETY BRANCH
CR = CRITICAL CARE BRANCH
EQ = EQUIPMENT SYSTEM
EM = EMERGENCY SYSTEM
ES = ESSENTIAL SYSTEM
CB = AMPERE RATED CIRCUIT BREAKER
S = AMPERE RATED SWITCH
F = AMPERE RATED FUSES
OCPD = OVERCURRENT PROTECTIVE DEVICE
EC = ELECTRICAL CONTRACTOR
FSEC = FOOD SERVICE EQUIP. CONTRACTOR
MAN = MANUAL CONTROLLER
MAG = MAGNETIC CONTROLLER
CS = COMBINATION CONTROLLER
RVS = REDUCE VOLTAGE CONTROLLER
2SP = 2 SPEED MAGNETIC CONTROLLER
VFD = VARIABLE FREQUENCY DRIVE
IU = IN UNIT
NU = NEAR UNIT
OU = ON UNIT
SFP = SEE FLOOR PLANS
SFS = SEE FOOD SERVICE PLANS
SD = SEE ONELINE DIAGRAM
BOL = BUILT-IN OVERLOAD
WP = WEATHER PROOF
FD = FUSIBLE DISCONNECT
LMRS = LOCKABLE MOTOR RATED SWITCH
MFR = MANUFACTURER
MC = MECHANICAL CONTRACTOR

MOTOR WIRING SCHEDULE NOTES:

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

THE SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER+LARSON ENGINEERING
GEIGER+LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

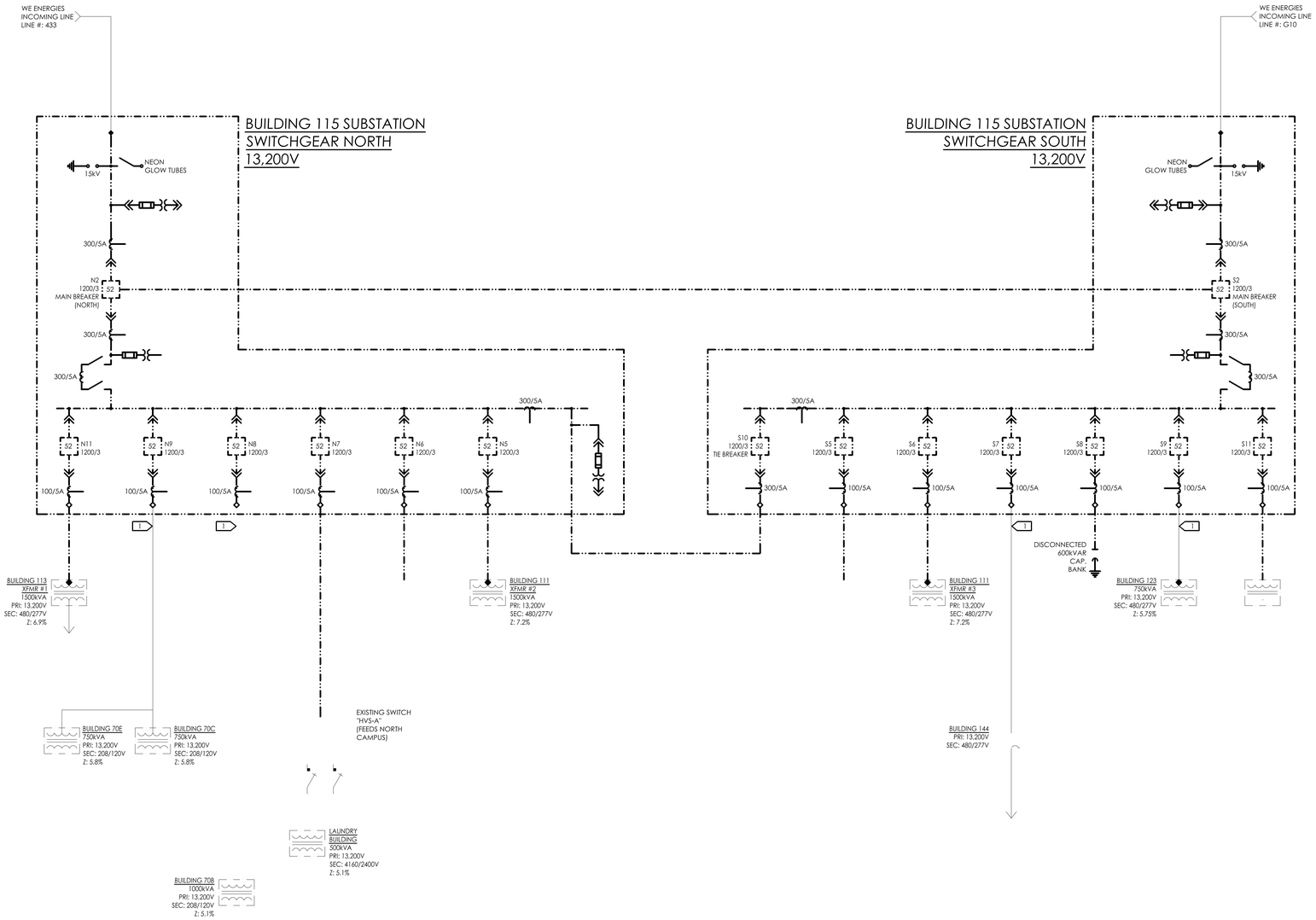
CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2002-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6005
MILWAUKEE, WI
1109 N. MAYFAIR RD., SUITE 208
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

CONSTRUCTION DOCUMENTS

Drawing Title: ELECTRICAL SCHDULES
Project Title: Replace Electrical Sub-Station
Project Number: 695-12-118
Building Number: 115
Approved: Project Director
Location: VA Medical Center,Milwaukee, WI
Date: 30 July 2012
Checked By: G+L
Drawn By: G+L
Drawing Number: E601

Office of Facilities Management
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978



FEEDER LEGEND:

1. ALL ITEMS INDICATED BY A DARK SOLID LINE ——— ARE NEW.
2. ALL ITEMS INDICATED BY A LIGHT SOLID LINE ——— ARE EXISTING TO REMAIN.
3. ALL ITEMS INDICATED BY A DASHED LINE — · · — ARE EXISTING TO BE REMOVED.
4. ALL ITEMS INDICATED BY A LIGHT DAS-DOT-DASH LINE — - — INDICATE EQUIPMENT ENCLOSURES.
5. ALL ITEMS INDICATED BY A LIGHT DASHED LINE - - - - - - - INDICATE FUTURE EQUIPMENT AND WORK.
6. ALL ITEMS INDICATED BY A DARK DASHED LINE — — — INDICATE TEMPORARY EQUIPMENT AND WORK.

REFERENCED NOTES: ⟨#⟩

1. REMOVE SWITCHGEAR END FEEDER TERMINATION AND PULL FEEDER BACK INTO EXISTING BUILDING 115 WEST CABLE VAULT. FEEDER SHALL BE TERMINATED IN NEW SECTIONALIZING CABINET. REFER TO ONELINE POWER DIAGRAM ON SHEET E701.

EXISTING ONE LINE POWER DIAGRAM

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

THE SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER+LARSON ENGINEERING
GEIGER+LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GelgerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

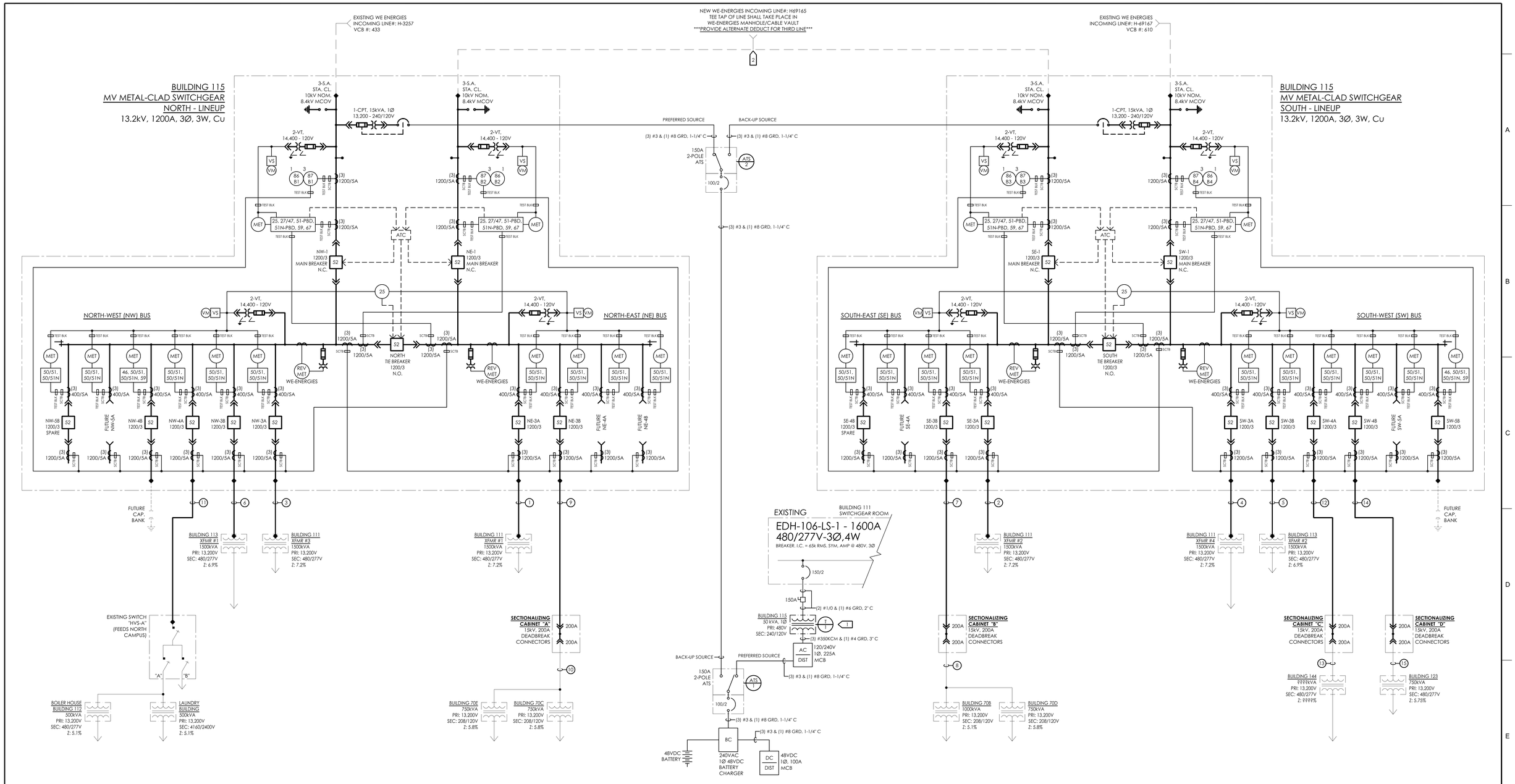
CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2002-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
1109 N. MAYFAIR RD.,
SUITE 208
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

CONSTRUCTION DOCUMENTS

Drawing Title	EXISTING ONELINE POWER DIAGRAM
Approved: Project Director	
Project Title	Replace Electrical Sub-Station
Location	VA Medical Center,Milwaukee, WI
Date	30 July 2012
Checked By:	G+L
Drawn By:	G+L
Project Number	695-12-118
Building Number	115
Drawing Number	E700

Office of Facilities Management
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978



ONE LINE SYMBOLS:

MEDIUM VOLTAGE LOAD INTERRUPTER SWITCH
TRANSFER SWITCH
DEVICE DESIGNATION
TRANSFORMER
MEDIUM VOLTAGE CABLE TERMINATION
CAPACITOR
PANELBOARD
CURRENT TRANSFORMER
DRAW-OUT VOLTAGE TRANSFORMER
SURGE SUPPRESSION
DENOTES SA = SURGE ARRESTERS
PROTECTIVE RELAY - MICROPROCESSOR
PROVISIONS FOR FUTURE BUS EXTENSIONS
GROUND
DIGITAL METER
DRAWOUT MEDIUM VOLTAGE AC VACUUM CIRCUIT BREAKER (VCB)
ANALOG VOLTAGE METER
VOLTAGE SWITCH
PROTECTIVE RELAY - ELECTROMECHANICAL
CONTROL POWER TRANSFORMER
13.2kV SOURCE AUTOMATIC TRANSFER CONTROL
WE-ENERGIES REVENUE METERING
SCTB - SHORT CIRCUIT TERMINAL BLOCK TEST BLK - TEST BLOCK
FEEDER IDENTIFICATION REFER TO DRAWING ES100 FOR FEEDER ROUTES
MEDIUM VOLTAGE CABLE TERMINATION WITH POTHEAD
SWITCHGEAR GROUNDING POINT

FEEDER LEGEND:

1. ALL ITEMS INDICATED BY A DARK SOLID LINE ——— ARE NEW (MV - 15kV).
2. ALL ITEMS INDICATED BY A LIGHT SOLID LINE ——— ARE EXISTING TO REMAIN.
3. ALL ITEMS INDICATED BY A DARK SOLID LINE ——— ARE NEW (LV - 600V).
4. ALL ITEMS INDICATED BY A LIGHT DAS-DOT-DASH LINE — · — · — INDICATE EQUIPMENT ENCLOSURES.
5. ALL ITEMS INDICATED BY A LIGHT DASHED LINE - - - - - - INDICATE FUTURE EQUIPMENT AND WORK.
6. ALL ITEMS INDICATED BY A DARK DASHED LINE — — — — INDICATE TEMPORARY EQUIPMENT AND WORK.

ANSI DEVICE FUNCTION NUMBER:

25	SYNCHRONISM-CHECK (PERMISSIVE CLOSE)
27	UNDERVOLTAGE
46	REVERSE PHASE
47	PHASE-SEQUENCE / PHASE BALANCE VOLTAGE
50	INSTANTANEOUS OVERCURRENT
50N	INSTANTANEOUS OVERCURRENT GROUND
51	TIME OVERCURRENT
51-PBD	TIME OVERCURRENT - PARTIAL BUS DIFFERENTIAL
51N	TIME OVERCURRENT GROUND
51N-PBD	TIME OVERCURRENT GROUND - PARTIAL BUS DIFFERENTIAL
52	AC CIRCUIT BREAKER
59	OVERVOLTAGE
67	DIRECTIONAL OVERCURRENT
86B	LOCKOUT
87B	BUS PHASE DIFFERENTIAL CURRENT

MV FEEDER SCHEDULE: (#)

FEEDER	DESCRIPTION:
1	3 - 1/C #1/0 AWG Cu. CONDUCTORS, 15kV EPR-133% MV-105 & 1 - #4 AWG Cu. EQUIPMENT GROUNDING GREEN CONDUCTOR, 600V, 90°/75°C (THHN/THWN)
2	3 - 1/C #1/0 AWG Cu. CONDUCTORS, 15kV EPR-133% MV-105 & 1 - #4 AWG Cu. EQUIPMENT GROUNDING GREEN CONDUCTOR, 600V, 90°/75°C (THHN/THWN)
3	3 - 1/C #1/0 AWG Cu. CONDUCTORS, 15kV EPR-133% MV-105 & 1 - #4 AWG Cu. EQUIPMENT GROUNDING GREEN CONDUCTOR, 600V, 90°/75°C (THHN/THWN)
4	3 - 1/C #1/0 AWG Cu. CONDUCTORS, 15kV EPR-133% MV-105 & 1 - #4 AWG Cu. EQUIPMENT GROUNDING GREEN CONDUCTOR, 600V, 90°/75°C (THHN/THWN)
5	3 - 1/C #1/0 AWG Cu. CONDUCTORS, 15kV EPR-133% MV-105 & 1 - #4 AWG Cu. EQUIPMENT GROUNDING GREEN CONDUCTOR, 600V, 90°/75°C (THHN/THWN)
6	3 - 1/C #1/0 AWG Cu. CONDUCTORS, 15kV EPR-133% MV-105 & 1 - #4 AWG Cu. EQUIPMENT GROUNDING GREEN CONDUCTOR, 600V, 90°/75°C (THHN/THWN)
7	3 - 1/C #1/0 AWG Cu. CONDUCTORS, 15kV EPR-133% MV-105 & 1 - #4 AWG Cu. EQUIPMENT GROUNDING GREEN CONDUCTOR, 600V, 90°/75°C (THHN/THWN)
8	EXISTING FEEDER - 3 - 1/C #1/0 AWG, CONTRACTOR SHALL CONFIRM EXISTING FEEDER CONDUCTORS.
9	3 - 1/C #1/0 AWG Cu. CONDUCTORS, 15kV EPR-133% MV-105 & 1 - #4 AWG Cu. EQUIPMENT GROUNDING GREEN CONDUCTOR, 600V, 90°/75°C (THHN/THWN)
10	EXISTING FEEDER - 3 - 1/C #1/0 AWG, CONTRACTOR SHALL CONFIRM EXISTING FEEDER CONDUCTORS.
11	3 - 1/C #1/0 AWG Cu. CONDUCTORS, 15kV EPR-133% MV-105 & 1 - #4 AWG Cu. EQUIPMENT GROUNDING GREEN CONDUCTOR, 600V, 90°/75°C (THHN/THWN)
12	3 - 1/C #1/0 AWG Cu. CONDUCTORS, 15kV EPR-133% MV-105 & 1 - #4 AWG Cu. EQUIPMENT GROUNDING GREEN CONDUCTOR, 600V, 90°/75°C (THHN/THWN)
13	EXISTING FEEDER - 3 - 1/C #1/0 AWG, CONTRACTOR SHALL CONFIRM EXISTING FEEDER CONDUCTORS.
14	3 - 1/C #1/0 AWG Cu. CONDUCTORS, 15kV EPR-133% MV-105 & 1 - #4 AWG Cu. EQUIPMENT GROUNDING GREEN CONDUCTOR, 600V, 90°/75°C (THHN/THWN)
15	EXISTING FEEDER - 3 - 1/C #1/0 AWG, CONTRACTOR SHALL CONFIRM EXISTING FEEDER CONDUCTORS.

REFERENCED NOTES: (#)

1. GROUND NEUTRAL OF TRANSFORMER TO ROOM PERIMETER GROUND BUS.
2. ALTERNATE DEDUCT BID ITEM 3. PROVIDE A PRICE DEDUCTION FOR ELIMINATING THE WE ENERGIES THIRD LINE. INSTEAD, WE ENERGIES SHALL PROVIDE A CABLE CONNECTION IN THEIR BUILDING #115 BASEMENT VAULT THAT SHALL CONNECT THE INCOMING LINE TERMINALS OF 13.2 KV MAIN VACUUM CIRCUIT BREAKERS #NE-1 AND #SE-1. THIS CONNECTION SHALL INCLUDE PROVISIONS FOR THE FUTURE CONNECTIONS OF WE ENERGIES THIRD AND FOURTH 13.2 KV SERVICE LINES. REFER TO SPECIFICATION 26 13 00, SECTION 2.23 PARAGRAPH A.10.

CONSTRUCTION DOCUMENTS

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

THE SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER+LARSON ENGINEERING
GEIGER+LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GelgerEng.com

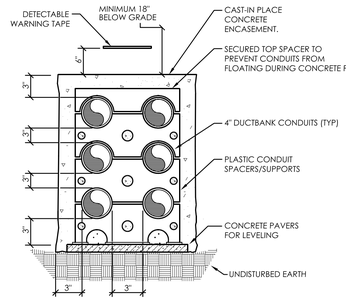
PROJECT LEADER/STRUCTURAL ENGINEER:

CHEQUAMEGON BAY ENGINEERING, INC.
© CBE 2000-2012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
1106 N. MAYFAIR RD.,
SUITE 208
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

Drawing Title	ONELINE POWER DIAGRAM
Project Title	Replace Electrical Sub-Station
Project Number	695-12-118
Building Number	115
Approved: Project Director	
Location	VA Medical Center,Milwaukee, WI
Date	30 July 2012
Checked By:	G+L
Drawn By:	G+L
Drawing Number	E701

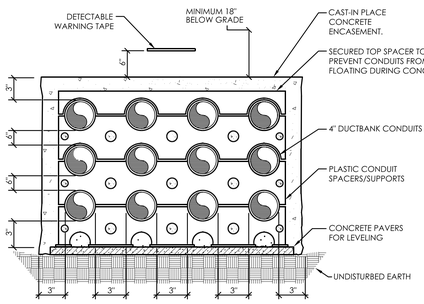
Office of Facilities Management
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978



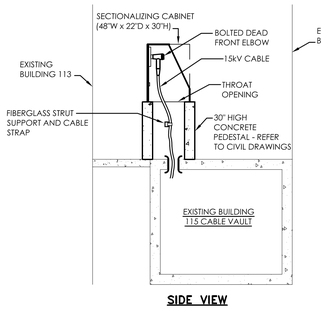
NOTE:
CONCRETE COVER DIMENSIONS SHOWN ARE MINIMUM.

SECTION B–B
ELECTRICAL DUCTBANK DETAIL 5
SCALE: NO SCALE

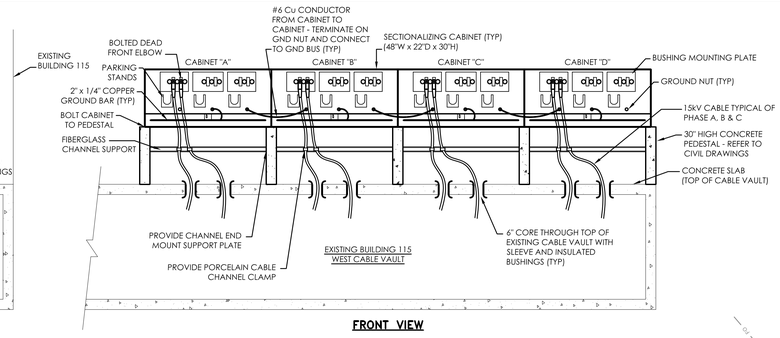


NOTE:
CONCRETE COVER DIMENSIONS SHOWN ARE MINIMUM.

SECTION A–A
ELECTRICAL DUCTBANK DETAIL 4
SCALE: NO SCALE

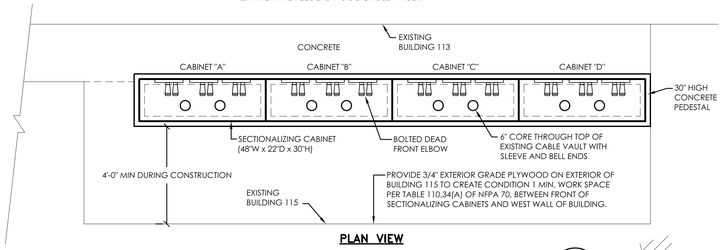


SIDE VIEW



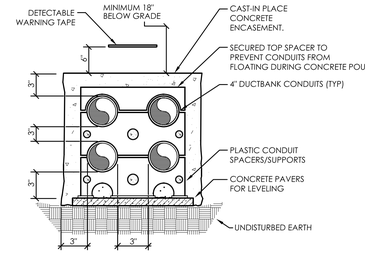
FRONT VIEW

NOTE:
1. PROVIDE GROUNDING BOND BETWEEN CABINET ENCLOSURES.
2. FIRE TAPE FEEDERS INSIDE CABLE VAULT.



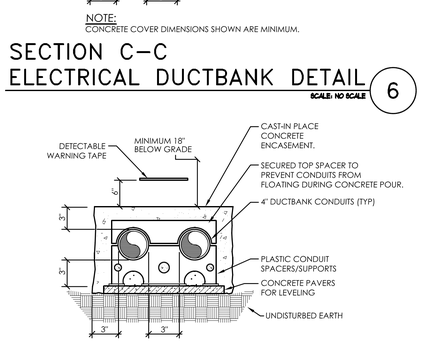
PLAN VIEW

SECTIONALIZING CABINET LAYOUT DETAIL 3
SCALE: NO SCALE



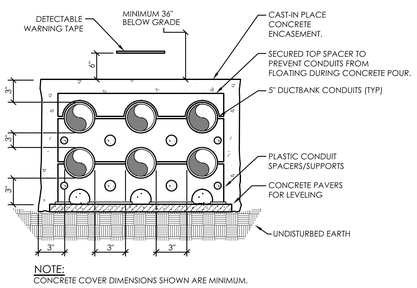
NOTE:
CONCRETE COVER DIMENSIONS SHOWN ARE MINIMUM.

SECTION C–C
ELECTRICAL DUCTBANK DETAIL 6
SCALE: NO SCALE



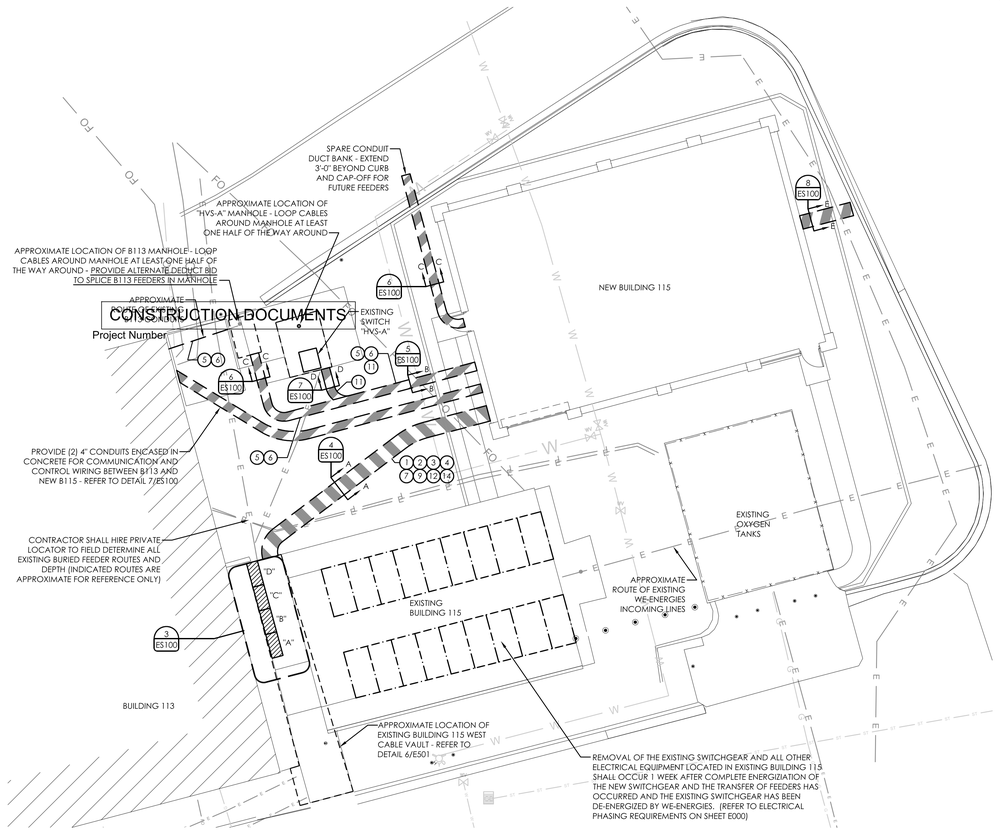
NOTE:
CONCRETE COVER DIMENSIONS SHOWN ARE MINIMUM.

SECTION D–D
ELECTRICAL DUCTBANK DETAIL 7
SCALE: NO SCALE



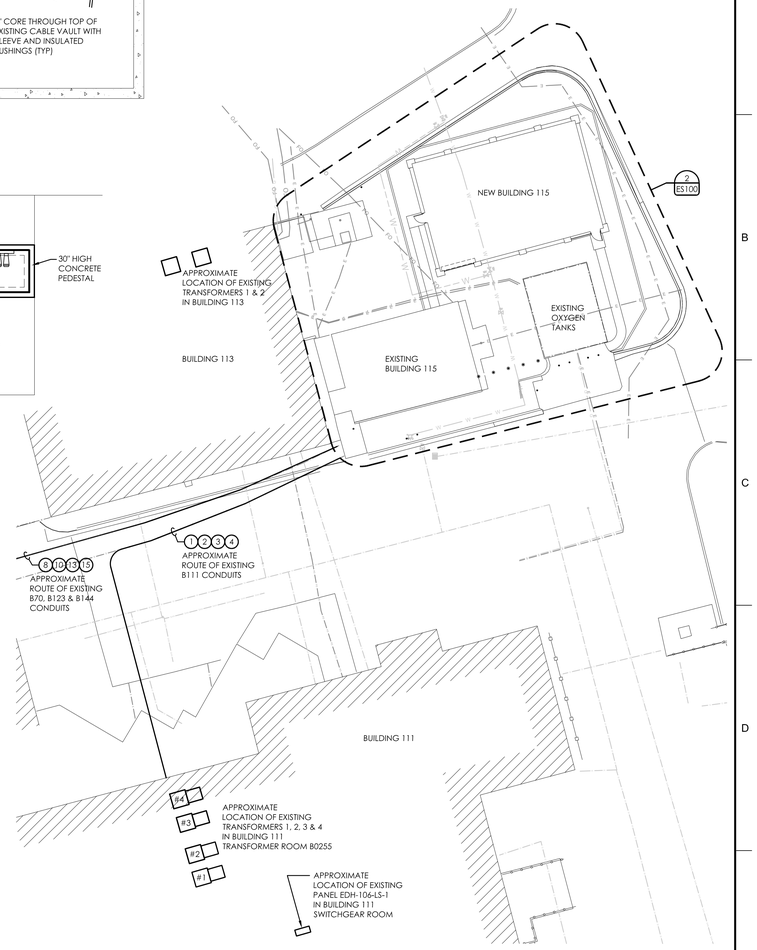
NOTE:
CONCRETE COVER DIMENSIONS SHOWN ARE MINIMUM.

SECTION E–E – WE–ENERGIES
ELECTRICAL DUCTBANK DETAIL 8
SCALE: NO SCALE



CONSTRUCTION DOCUMENTS
Project Number

ELECTRICAL SITE PLAN–ENLARGED 2
SCALE: 1" = 10'



ELECTRICAL SITE PLAN–OVERALL 1
SCALE: 1" = 30'

FEEDER SCHEDULE: (#)
REFER TO ONE-LINE DIAGRAM FOR FEEDER SIZES.

FEEDER	FROM:	TO:	FEEDER DESCRIPTION:
1	NEW BUILDING 115 - VCB#: NE-3A	EXISTING BUILDING 111 - TRANSFORMER #1	ROUTE THROUGH NEW DUCTBANK, EXISTING CABLE VAULT & EXISTING COND.
2	NEW BUILDING 115 - VCB#: SE-3A	EXISTING BUILDING 111 - TRANSFORMER #2	ROUTE THROUGH NEW DUCTBANK, EXISTING CABLE VAULT & EXISTING COND.
3	NEW BUILDING 115 - VCB#: NW-3A	EXISTING BUILDING 111 - TRANSFORMER #3	ROUTE THROUGH NEW DUCTBANK, EXISTING CABLE VAULT & EXISTING COND.
4	NEW BUILDING 115 - VCB#: SW-3A	EXISTING BUILDING 111 - TRANSFORMER #4	ROUTE THROUGH NEW DUCTBANK, EXISTING CABLE VAULT & EXISTING COND.
5	NEW BUILDING 115 - VCB#: NW-3B	EXISTING BUILDING 113 - TRANSFORMER #1	ROUTE THROUGH NEW DUCTBANK, EXISTING MANHOLE & EXISTING CONDUIT
6	NEW BUILDING 115 - VCB#: SW-3B	EXISTING BUILDING 113 - TRANSFORMER #2	ROUTE THROUGH NEW DUCTBANK, EXISTING MANHOLE & EXISTING CONDUIT
7	NEW BUILDING 115 - VCB#: SE-3B	NEW SECTIONALIZING CABINET "A"	ROUTE THROUGH NEW DUCTBANK AND EXISTING CABLE VAULT
8	NEW SECTIONALIZING CABINET "A"	EXISTING BUILDING 70A.B & D	PULL-BACK EXISTING FEEDER FROM EXISTING BUILDING 115
9	NEW BUILDING 115 - VCB#: NE-3B	NEW SECTIONALIZING CABINET "A"	ROUTE THROUGH NEW DUCTBANK AND EXISTING CABLE VAULT
10	NEW SECTIONALIZING CABINET "B"	EXISTING BUILDING 70C & E	PULL-BACK EXISTING FEEDER FROM EXISTING BUILDING 115
11	NEW BUILDING 115 - VCB#: NW-4A	EXISTING HIGH VOLTAGE SWITCH "HVS-A"	ROUTE THROUGH NEW DUCTBANK AND EXISTING CABLE VAULT
12	NEW BUILDING 115 - VCB#: SW-4A	NEW SECTIONALIZING CABINET "C"	ROUTE THROUGH NEW DUCTBANK AND EXISTING CABLE VAULT
13	NEW SECTIONALIZING CABINET "C"	EXISTING BUILDING 144	PULL-BACK EXISTING FEEDER FROM EXISTING BUILDING 115
14	NEW BUILDING 115 - VCB#: SW-4B	NEW SECTIONALIZING CABINET "D"	ROUTE THROUGH NEW DUCTBANK AND EXISTING CABLE VAULT
15	NEW SECTIONALIZING CABINET "D"	EXISTING BUILDING 123	PULL-BACK EXISTING FEEDER FROM EXISTING BUILDING 115

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

THE SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER+LARSON ENGINEERING
GEIGER+LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GelgerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

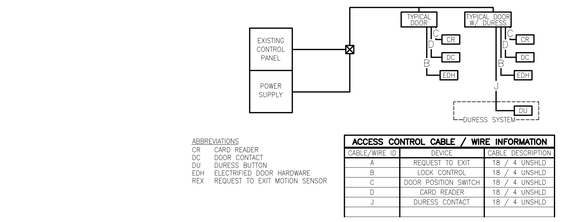
CHEQUAMEGON BAY ENGINEERING, INC.
CBE 2006-0012
ASHLAND, WI
211 6TH STREET WEST
ASHLAND, WI. 54806
PHONE: (715) 682-6004
FAX: (715) 682-6025
MILWAUKEE, WI
1109 N. MAYFAIR RD.,
SUITE 208
MILWAUKEE, WI. 53226
PHONE: (414) 258-6004
FAX: (414) 258-6154

Drawing Title: ELECTRICAL SITE PLAN	Project Title: Replace Electrical Sub-Station
Approved: Project Director	Location: VA Medical Center,Milwaukee, WI
	Date: 30 July 2012
	Checked By: G+L
	Drawn By: G+L
	Project Number: 695-12-118
	Building Number: 115
	Drawing Number: ES100

CONSTRUCTION DOCUMENTS

Office of Facilities Management
Department of Veterans Affairs

VA FORM 08–6231, OCT 1978

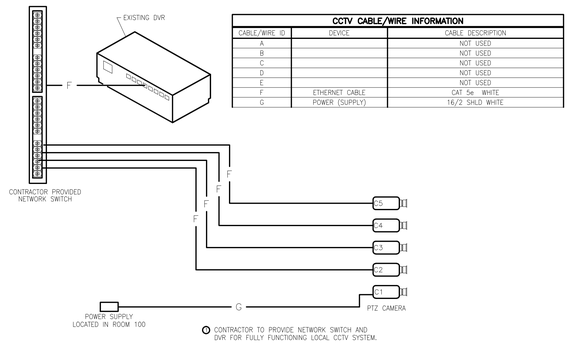


ABBREVIATIONS
CR CARD READER
DC DOOR CONTACT
DU DURESS BUTTON
EDH ELECTRIFIED DOOR HARDWARE
REX REQUEST TO EXIT MOTION SENSOR

ACCESS CONTROL CABLE / WIRE INFORMATION

CABLE/WIRE ID	DEVICE	CABLE DESCRIPTION
A	REQUEST TO EXIT	18 / 4 UNSHLD
B	LOCK CONTROL	18 / 4 UNSHLD
C	DOOR POSITION SWITCH	18 / 4 UNSHLD
D	CARD READER	18 / 4 UNSHLD
J	DURESS CONTACT	18 / 4 UNSHLD

CARD ACCESS RISER
NO SCALE — 5

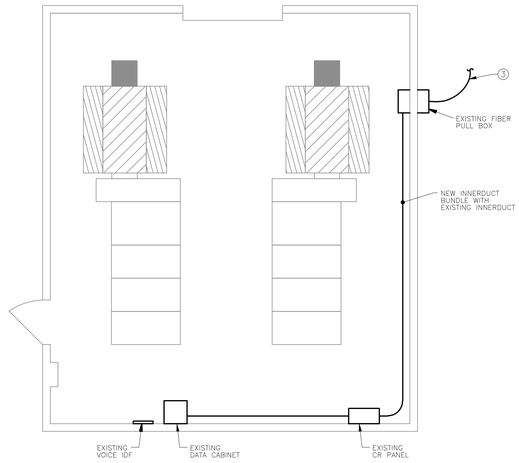


CONTRACTOR TO PROVIDE NETWORK SWITCH AND DVR FOR FULLY FUNCTIONING LOCAL CCTV SYSTEM.

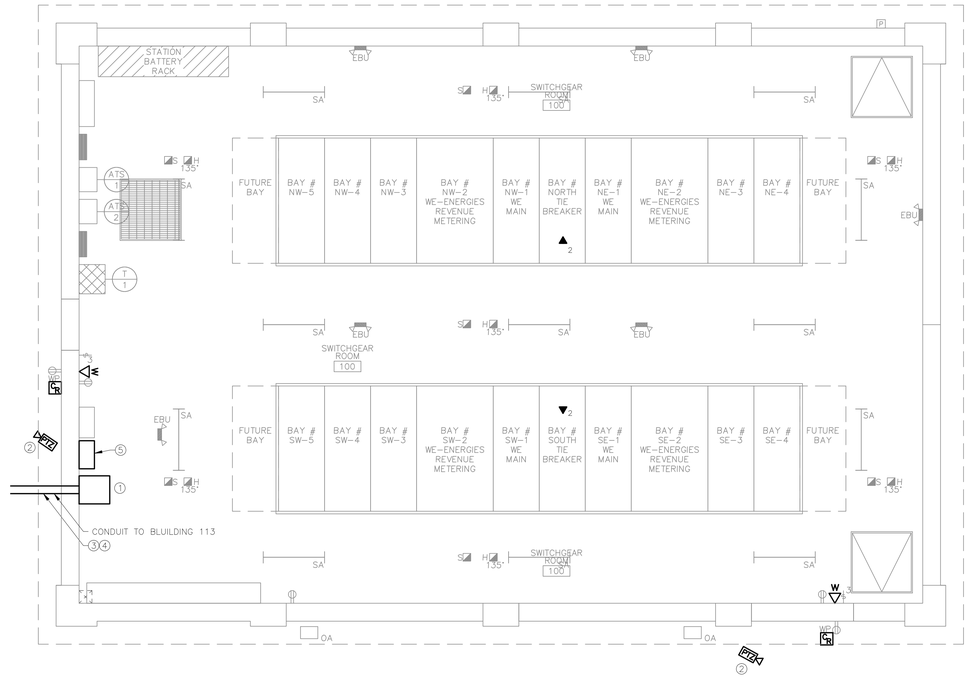
CCTV CABLE/WIRE INFORMATION

CABLE/WIRE ID	DEVICE	CABLE DESCRIPTION
A		NOT USED
B		NOT USED
C		NOT USED
D		NOT USED
E		NOT USED
F	ETHERNET CABLE	CAT 5e WHITE
G	POWER (SUPPLY)	16/2 SHLD WHITE

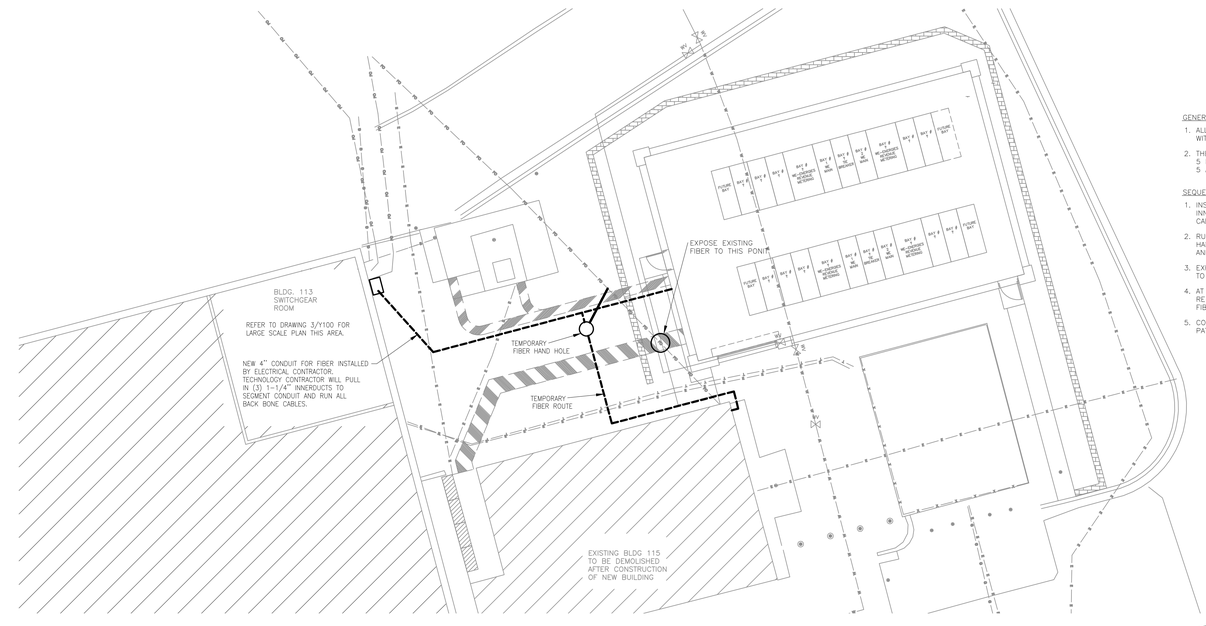
CAMERA RISER
NO SCALE — 4



BLDG 113 SWITCHGEAR ROOM – TECHNOLOGY CABLE PATHWAY
SCALE: NONE — 3



GROUND LEVEL FLOOR PLAN–TECHNOLOGY
SCALE: 1/4" = 1'-0" — 1



SITE PLAN – TECHNOLOGY
SCALE: 1" = 20' — 2

GENERAL NOTES:
1. ALL WORK MUST BE SCHEDULED AND COORDINATED WITH BRIAN JAKOBS OF THE VA AND THE ENGINEER.
2. THE CUTOVER WORK WILL NEED TO TAKE PLACE IN A 5 HOUR OUTAGE WINDOW BETWEEN THE HOURS OF 5 AND 10 PM.

SEQUENCE OF EVENTS FOR FIBER INSTALL:
1. INSTALL 24x24 HAND HOLE AND RUN 2" HDPE INNERDUCT FROM HAND HOLE TO WALL MOUNT CABINET IN BLDG. 113.
2. RUN 48 STRANDS OF 62.5/125 MULTIMODE FIBER FROM HAND HOLE TO BLDG. 113 CABINET. TERMINATE CABINET AND LEAVE 150 FEET AT HAND HOLE.
3. EXPOSE EXISTING FIBER WITH ADEQUATE LENGTH TO SPLICE IN HAND HOLE.
4. AT DESIGNATE CUT OVER TIME, CUT FIBER AND RE-ROUTE TO HAND HOLE. FUSION SPLICE EXISTING FIBER TO NEW FIBER.
5. COORDINATE WITH VA STAFF TO MOVE FIBER PATCH CORES AND TEST.

PLAN SYMBOLS
- CARD READER – PROVIDE CARD READER PER SPECIFICATIONS. SYSTEM SHALL BE UPGRADED THROUGHOUT BUILDING TO P2000. COORDINATE INSTALLATION WITH DOOR HARDWARE.
- ▼ 1 CAT6 DATA CABLE TERMINATED PER SPECIFICATIONS. COORDINATE EXACT CAT6 INSTALLATION WITH ELECTRICAL CONTRACTOR AS DATA JACK WILL BE USED FOR ADVANCED METERING APPLICATIONS.
- ▼# COMMUNICATIONS OUTLET # INDICATES NUMBER OF DATA JACKS
- WALL PHONE. RUN 1 CAT5e CABLE TERMINATE ON VOICE IDF
- C IP CAMERA PER SPECIFICATIONS. 1 CAT6 CABLE WILL BE RUN TO CAMERA LOCATION.
- PTZ PAN TILT ZOOM IP CAMERA. RUN CAT5e CABLE TO CAMERA LOCATION. RUN 14/2 POWER CABLE TO POWER PACK LOCATED NEAR DATA RACK.

PLAN NOTES
1. PROVIDE 48" LOCKING WALL MOUNTED DATA CABINET. ALL DATA CABLING, FIBER OPTICS, AND EQUIPMENT SHALL BE INSTALLED IN CABINET.
2. INSTALL IP CAMERA. CAMERA SHALL BE PAN, TILT, ZOOM CAPABLE. CABLE SHALL BE RAN TO DVR LOCATED IN NEW WALL MOUNT CABINET.
3. RUN 3 FIBER OPTIC CABLES
   1 – SIX STRAND 62.5/125 MM
   1 – SIX STRAND SM
   1 – SIX STRAND SM FOR JCI
   ALL FIBER SHALL TERMINATE IN FIBER PANELS LOCATED IN DATA CABINETS.
4. RUN (1) 12-PAIR COPPER OSP CABLE. LIGHTNING PROTECT BOTH ENDS. TERMINATE ON 2x2 PLYWOOD PANEL MOUNTED NEXT TO DATA CABINET. LABEL PER SPECIFICATIONS AND TERMINATE AT BLDG 113 VOICE IDF FOR VA PERSONNEL TO CROSS CONNECT.
5. NEW CARD READER EXPANSION PANEL. RUN (1) 18/4 CONDUCTOR CABLE FROM JCI CR PANEL IN BLDG. 113 TO NEW EXPANSION PANEL.

Revisions:	Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

CONSULTANTS:

THE SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GEIGER + LARSON ENGINEERING
GEIGER + LARSON ENGINEERING INC
316 N Milwaukee St | Suite 202 | Milwaukee, WI 53202
T: 414-273-1432 | www.GeigerEng.com

PROJECT LEADER/STRUCTURAL ENGINEER:

CHEQUAMEGON BAY ENGINEERING, INC.
ASHLAND, WI
511 6TH STREET WEST
ASHLAND, WI, 54806
PHONE: (715) 685-9224
FAX: (715) 685-9225
MILWAUKEE, WI
833 N. MAYFAIR RD., SUITE 109
MILWAUKEE, WI, 53226
PHONE: (414) 258-9224
FAX: (414) 258-9154

Drawing Title	TECHNOLOGY FLOOR PLAN
Approved: Project Director	
Project Title	Replace Electrical Sub-Station
Location	VA Medical Center,Milwaukee, WI
Date	30 July 2012
Checked By:	G+L
Drawn By:	G+L
Project Number	695-12-118
Buliding Number	115
Drawing Number	Y100

CONSTRUCTION DOCUMENTS

Office of Facilities Management

Department of Veterans Affairs

VA FORM 08-6231, OCT 1978